























21.11.1850  
TURTON'S

# BRITISH FAUNA.

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CONTAINING

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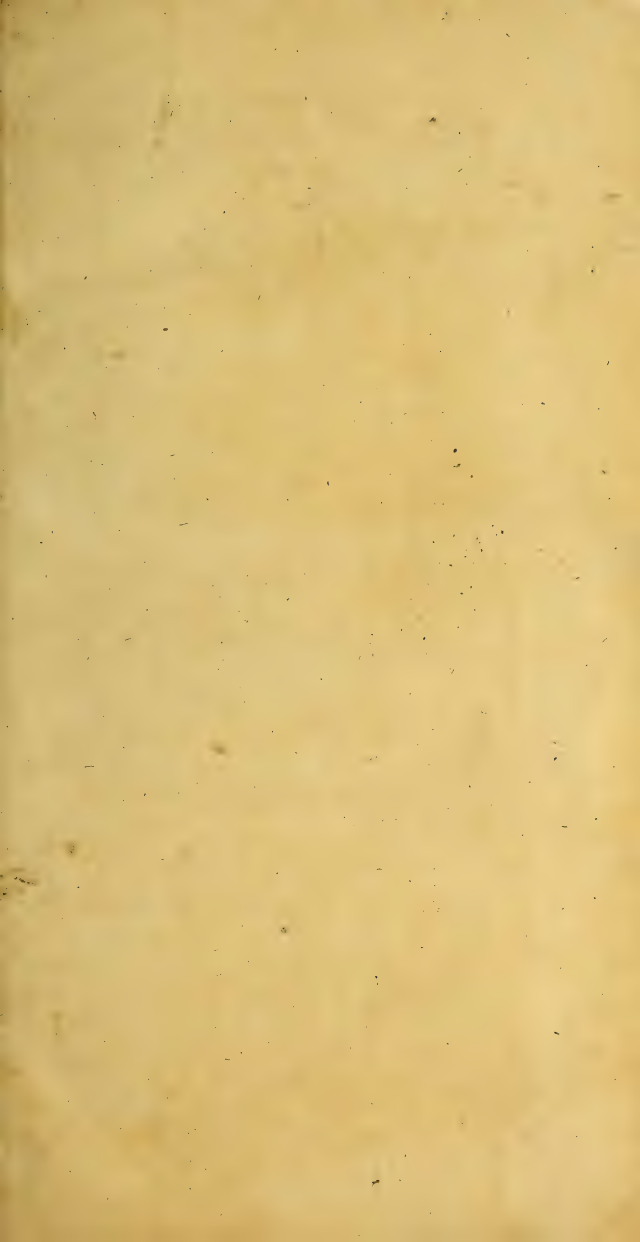
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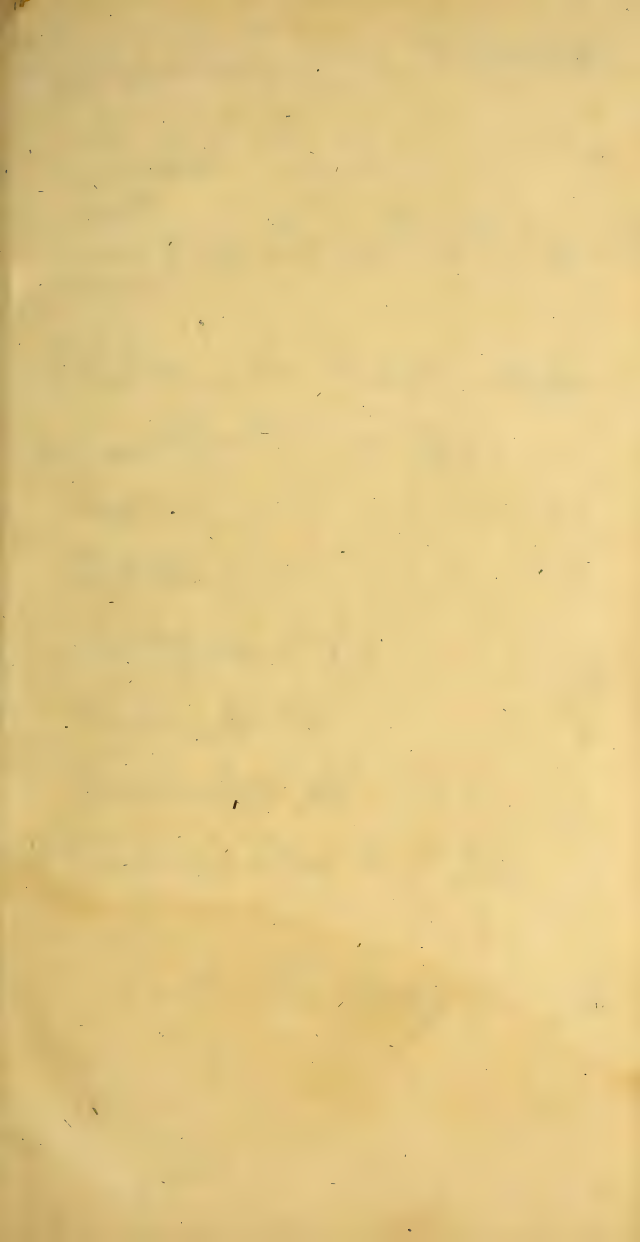
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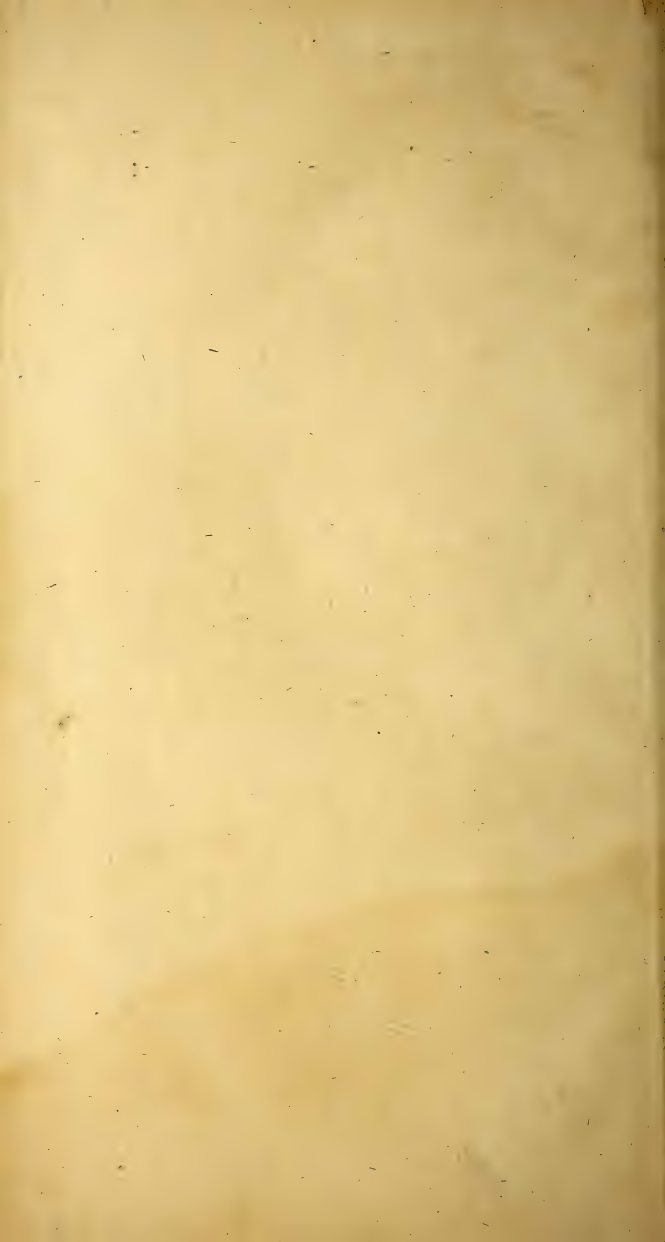












# British Birds

List by Henry Doubleday. 1836.

Whole number killed or taken  
in Great Britain is 323.-

viz

Raptures 30

Scapores to 117.

Raptors to 17

Gallatres 66.

& the Natatores to 93.-

Not Libbey. p. 76

According to Audubon there are 470 species of British birds -

British Ornithology  
by P. J. Selby from 1826 to 1833  
2 vols fol with 8<sup>vo</sup> Letter press  
descriptions -

327 Species of British  
Birds finished the size of life  
with but few exceptions.

See a notice of British  
Works on Birds

Nat Lib. vol 17 - p. 82.

Tartar's Fauna 1807 -  
gives of British Birds. 294. p. 77 -  
and in the appendix he makes  
or. 295 - as the number of  
British birds then known -



Went to the bank in the morning

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for the 17th

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the bank

for the 17th

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 30 \ 80 \\
 20 \ 35 \\
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*Cornus fragilis* Leg. Tarkenton. 10.30 -  
Buck - Perry May. 1884. 10.35.

Wing 38. inches

Length 19 inches

Weight 19 ounces -

Paul Mueller

30 80  
40 30



541.42  
3962

# BRITISH FAUNA,

CONTAINING

A COMPENDIUM

OF

*The ZOOLOGY*

OF THE

## BRITISH ISLANDS:

ARRANGED ACCORDING TO THE

*LINNEAN SYSTEM.*

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By W. TURTON, M. D. F. L. S.

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VOL. I.

INCLUDING THE CLASSES

MAMMALIA, BIRDS, AMPHIBIA,  
FISHES, and WORMS.

---

*Consultum tamen erit hoc principio, Domi magis quam foris  
viti, ne inusitata rerum admiratio nimiam ignorantiam pro-  
damus, et sic nostram nationem exponamus contemptui et  
risui exterorum. LINNE.*

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SWANSEA:

PRINTED BY J. EVANS, WIND-STREET.

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1807.

1870 1871 1872 1873 1874

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2576 109

REMARKS: BROTTEN

THE UNIVERSITY OF CHICAGO

UNIVERSITY OF CALIFORNIA

2015

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TABLE 1. *Continued*

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## PREFACE.

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**PERFECTION**, says the scholiast, is the first in intention and the last in execution.

To Man, "the last and best of all God's works," has alone been committed the power of collection, arrangement, discrimination, and description.

Whatever materials conjunctly compose the whole of the globe he inhabits, are individually the objects of investigation to the philosopher and the naturalist: for as the whole is composed of the parts, the most humble and minute of created substances holds its effective rank in this great and august assemblage.

The various subjects of creation are arranged into the three **KINGDOMS** of **ANIMALS**, **VEGETABLES** and **MINE-  
RALS**. These several Kingdoms are distributed into **CLASSES**, which are reduced into **ORDERS**: the orders are divided into **GENERA** or families, ultimately subdivided into **SPECIES** or individuals, with their accidental *varieties*.

Local arrangements, systematically exhibited, have ever been considered as highly subservient to a general knowledge of natural history; inasmuch as by the contemplation of a smaller range, the various objects contained in it may be more accurately examined and described.

The Fauna of the British Islands, has hitherto been only attempted, according to the Linnéan system, in the imperfect Synopsis of Berkenhout.

The Author has therefore gathered together in a compendious and portable form, whatever he has had an opportunity autopsically to examine and describe, or collect from the labours of modern individuals and societies.

No alteration has been made in the amended classification of Linné, except that the Worms are placed before the Insects, both as having a more natural alliance with the preceding classes, and as forming a more commodious division of the work.

It is the intention of the author, numine concedente, as his leisure and opportunities will allow, to proceed in the same form and manner with the remaining departments in the natural history of these Islands, of Insects, Vegetables, and Minerals; and which will probably be comprised in three more volumes.

*Finis Creationis est gloria Dei ex opere*

*Naturæ, per Hominem solum.*

SWANSEA, Jan. 1, 1807.



## CLASS I. MAMMALIA.

Animals suckling the young.

### ORDER I. PRIMATES.

*Front-teeth formed for cutting: tusks one on each side in each jaw: teats 2, seated on the breast.*

1. **HOMO.** *Front-teeth 4 in each jaw, placed close together: canine-teeth placed close to and of equal length with the rest: grinders obtuse.*
2. **VESPERTILIO.** *Teeth all erect, pointed, placed close together: fore-feet palmate with a membrane which surrounds the body and gives the power of flight.*

### ORDER II. FERÆ.

*Front teeth generally 6 in each jaw, rather conic: canine-teeth one or more on each side in each jaw: grinders with conic projections: feet armed with sharp claws.*

3. **PHOCA.** *Front-teeth in the upper-jaw 6, the outer-ones larger; in the lower-jaw 4, more obtuse, and equal: canine-teeth one each side in each jaw, longer and larger than the rest, the upper-ones distinct from the cutting teeth, the lower-ones from the grinders: grinders 5 each side above, 6 below, narrow, tricuspidate: hind-feet placed at the extremity of the body, and uniting into a fin.*
4. **CANIS.** *Front-teeth in the upper-jaw 6, the lateral-ones longer and distant, the intermediate-ones lobed; in the lower-jaw 6, the lateral-ones lobed: canine-teeth one in each jaw each side, incurved: grinders 6 or 7, or more than in the other genera of this order.*
5. **FELIS.** *Front-teeth 6, the intermediate-ones equal: grinders 3 on each side: tongue armed with prickly protuberances pointing backwards: claws retractile.*
6. **VIVERRA.** *Front-teeth 6, rather acute: canine-teeth longer than the others: grinders more than 3 each side: tongue smooth or prickly: body long and slender: feet not webbed.*
7. **LUTRA.** *Front-teeth 6, rather acute: canine-teeth longer than the others: grinders more than 3 each side: tongue smooth: feet webbed.*
8. **URSUS.** *Front-teeth in the upper-jaw 6, hollowed within; in the lower-jaw 6, the two lateral-ones longer than the rest and lobed, with smaller-ones at their*

base internally; *canine-teeth* solitary: *grinders* 5 or 6 each side, the first placed close to the canine-teeth: *tongue* smooth: *snout* prominent: *eyes* furnished with a nictitant membrane.

9. TALPA. *Front-teeth* in the upper-jaw 6, unequal; in the lower-jaw 8: *canine-teeth* solitary, the upper-ones larger: *grinders* 7 in the upper-jaw, 6 in the lower.
10. SOREX. *Front-teeth* in the upper-jaw 2, long, cloven; in the lower-jaw 2 or 4, the intermediate-ones shorter: *canine-teeth* several each side: *grinders* cuspidate.
11. ERINACEUS. *Front-teeth* in the upper-jaw 2, distant; in the lower-jaw 2, close together: *canine-teeth* 5 each side in the upper-jaw, and 3 in the lower: *grinders* 4 each side in each jaw: *body* covered with spines on the upper parts.

### ORDER III. GLIRES.

*Front-teeth* 2 in each jaw, close together, remote from the *grinders*: *canine teeth* none.

12. CASTOR. *Front-teeth* in the upper-jaw truncate, and hollowed in a transverse angle; in the lower-jaw transverse at the tips: *grinders* 4 on each side: *tail* long, depressed, scaly: *clavicles* or collar-bones perfect.
13. MUS. *Front-teeth* of the upper-jaw wedge-shaped: *grinders* 3 each side, rarely only 2: *clavicles* perfect.
14. SCIURUS. *Front-teeth* of the upper-jaw wedge-shaped, of the lower acute: *grinders* 5 each side in the upper-jaw, 4 in the lower: *clavicles* perfect: *tail* spreading towards each side.
15. MYOXUS. *Front-teeth* of the upper-jaw wedge-shaped, of the lower compressed: *grinders* 4 in each jaw: *whiskers* long: *tail* round, hairy, thicker towards the tip: *legs* of equal length: *fore-feet* 4-toed.
16. LEPUS. *Front-teeth* of the upper-jaw furnished with two smaller ones placed behind them.

### ORDER IV. PECORA,

*Front-teeth* wanting in the upper-jaw; in the lower 6 or 8, very remote from the *grinders*: *feet* with cloven hoofs.

17. CERVUS. *Horns* solid, branched, annual, covered while young with a hairy skin: *front-teeth* in the lower-jaw 8: *canine-teeth* none, or a single one in the upper-jaw.
18. CAPRA. *Horns* hollow, pointing upwards and turned back, compressed, rough, nearly close together at the

DSI

base : *front-teeth* in the lower-jaw 8 : *canine-teeth* none : *chin* of the male bearded.

19. OVIS. *Horns* hollow, wrinkled, turned backwards and spirally twisted inwards : *front-teeth* in the lower-jaw 8 : *canine-teeth* none.
20. BOS. *Horns* hollow, smooth, turned outwards and forwards, crescent-shaped : *front-teeth* in the lower-jaw 8 : *canine-teeth* none.

#### ORDER V. BELLUÆ.

*Front-teeth obtuse, truncate : feet hoofed.*

21. EQUUS. *Front-teeth* in the upper-jaw 6, parallel ; in the lower-jaw 6, rather projecting : *tusks* one each side in each jaw, remote from the rest : *hoofs* undivided.
22. SUS. *Front-teeth* in the upper-jaw 4, converging ; in the lower 6, projecting : *tusks* in the upper-jaw 2, rather short ; in the lower 2, long, and at length exerted : *hoofs* cloven.

#### ORDER VI. CETÆ.

*With spiracles, or breathing holes, on the forepart of the head : feet none : pectoral fins without claws : tail placed horizontally.*

23. MONODON. *Head* furnished with one or two long spirally twisted teeth, projecting straight forwards, like horns, through the upper lip : *spiracle* on the head.
24. BALÆNA. *Teeth* none, instead of which are horny laminae in the upper-jaw : *spiracle* with a double orifice, on the top of the head.
25. PHYSETER. *Teeth* visible in the lower-jaw only : *spiracle* on the head or snout.
26. DELPHINUS. *Teeth* visible in each jaw : *spiracle* on the head.

## MAMMALIA. PRIMATES. 1, 2.

### CLASS I. MAMMALIA.

#### ORDER I. PRIMATES,

1. HOMO. *Man*. The image of his creator.

2. VESPERTILIO. *Bat*.

1. *V. auritus*. Front-teeth in the upper-jaw 4, in the lower 6: tailed; nose without appendages: ears double, larger than the head.

Long-eared Bat. *Pennant Zool. tab. 13. n. 40.*

Length barely 2 inches: expansion of the wings 7 inches.

Body reddish mouse-colour: ears more than an inch long, rounded at the ends, with smaller supplemental ones within them, thin, nearly transparent.

2. *V. murinus*. Front-teeth in the upper-jaw 4, in the lower 6: tailed; nose without appendage: ears less than the head.

Common Bat. *Edwards, tab. 201. f. 2.*

Length 2 inches and a half, extent 9 inches.

Body mouse-coloured with a red-tinge: wings and ears blackish: ears small, rounded.

3. *V. Noctula*. Front-teeth in the upper-jaw 4, in the lower 6: tailed; nose without appendage: ears oval, with small valves.

Great Bat. *Penn Brit. Zool. tab. 13. n. 38.*

Length 4 inches and a half: extent 14 or 15 inches.

Body chesnut, glossy: nose slightly 2-lobed: mouth simple: chin with a minute wart: ears small, rounded.

4. *V. Barbastellus*. Front teeth in the upper jaw 4, in the lower 6: tailed; cheeks tumid, hairy: ears large, angular near the base: forehead bald.

Barbastelle Bat. *Sowerby Brit. Miscel. tab. 5.*

Length 2 inches, extent of wings about 10.

Body dusky-brown, paler beneath: teeth all notched, except the canine: fore-head flat and bald: nose smooth and concave: ears nearly surrounding the eyes, as long as the head, notched at each edge, undulate on the outer margin, hairy on the back, appendaged within.

5. *V. Ferrum equinum*. Front-teeth in the upper-jaw none, in the lower 4: nose horse-shoe-shaped: ears without appendage, as long as the head: tail half as long as the body.

Horse-shoe Bat. *Pennant. Brit. Zool. tab. 14. n. 39.*

Length 3 inches and a half, extent of wings 14.

Body deep cinereous on the upper parts, whitish below: nose furnished with an upright membrane shaped like a horse-shoe: ears large, acute, broad at the base, remote from the eyes, inclining backwards, not appendaged within; tail pointed.

#### ORDER II FERÆ,

3. PHOCA. *Seal*.

6. *Ph. vitulina*. Brown, without ears: head and neck smooth.



Common Seal, Sea Calf. *Br. Zool. tab. 12. Shaw Zool. 1. tab. 70.*

Body 5 or 6 feet long, tapering from the shoulders, various shades of brown, often spotted, clothed when young with thick-set hair; head short, large and round, furnished with whiskers each side the mouth and over the eyes, the hairs of which have alternate contractions and dilatations: eyes large, black, furnished with a nictitant membrane: external ears none, in the place of which are two small orifices: tongue cloven: legs short, webbed, 5-toed, with strong slender claws slightly incurved at their tips; the hinder-ones pointing backwards and placed close together: tail shorter than the hind legs.

7. *Ph. barbata*. Blackish, without ears: head smooth.

Great Seal. *Shaw Zool. t. 74. Phil. Trans. n. 469. t. 1.*

Greatly resembles the last, but grows to the length of 12 feet, and is of an uniformly blackish colour.

4. CANIS. Dog.

8. *C. familiaris*. Tail bent backwards, and leaning towards the left.

Found of many sizes and varieties, the original animal of which is supposed to be the Shepherd's dog, distinguished by its erect ears, and tail very woolly underneath.

Head carinate on the crown: lower-lip hid by the upper, indented and naked at the sides: whiskers in 5 or 6 rows: nostrils turned outwards into a semilunar furrow: ears, the upper margin reflected, anterior 3-lobed, posterior doubled: face with 7 hairy warts: teats 10, 4 of which are on the breast: fur with 8 ridges, on the neck, breast, fore-legs, belly, eyes, loins, ears, and near the anus: feet slightly palmate, with sometimes a spurious toe or two behind.

9. *C. Lupus*. Pale yellowish-grey: tail bent inwards, bushy, tipt with black.

Wolf. *Pennant Brit. Zool. 1. tab. 6.*

Body about as large as a Greyhound, pale brown with a yellowish tinge: head and neck cinereous: head long: nose pointed: ears sharp, erect: teeth large: legs long: hair rather long.

10. *C. Vulpes*. Yellowish-brown, whitish beneath: tail straight, bushy, tipt with white.

Fox. *Schreber 3. p. 345. tab. 90.*

Head broad, forehead flat: nose sharp: ears erect, sharp, tipt with black: eyes rather oblique: lips white: fore-feet black.

5. FELIS. Cat.

11. *F. Catus*. Tail long, barred with distinct rings: forehead with 7 stripes between the ears.

Cat. *Johns. Quadrup. t. 72. Buffon 6. p. 20. t. 1.*

Body when in a wild state yellowish-grey with blackish stripes, 3 disposed longitudinally on the back, those on the sides spiral: tip of the nose and lips black: ears smooth, rounded: soles of the feet black: claws horn-colour, curved.

6. VIVERRA. Weasel.

12. *V. Foina*. Blackish chesnut: throat and breast white.

Martin. *Brit. Zool. tab. 6. n. 15. Buffon 7. pl. 15.*

Body about 18 inches long, blackish tawny, paler beneath: head small, reddish-brown: ears broad, rounded: eyes lively: hair of the body cinereous at the bottom, bright chesnut in the middle, and tipt with black: tail full of hair, darker than the body, about 10 inches long: palms of the feet clothed with thick down: claws white, sharp.

13. *V. Martes*. Blackish-chesnut, throat and breast yellow.

Pine Martin. *Buffon*. 7. pl. 22.

Differs from the last in having the throat and breast yellow, the head shorter, the hair rather darker, and the legs a little longer.

14. *V. Putorius*. Blackish-yellow, mouth and ears white.

Polecat, Fitchet. *Penn. Zool.* pl. 6. *Shaw Zool.* pl. 98.

Body about 17 inches long; head thicker than in the Martin; mouth of the male whitish, of the female yellowish-white; ears edged with white; tail 6 inches long, taper; legs short; toes long, cloven to the bottom.

15. *V. vulgaris*. Pale reddish-brown above, beneath white; tail the colour of the body.

Common Weasel. *Penn. Zool.* pl. 7. n. 17. *Shaw Zool.* pl. 98.

Body 6 or 7 inches long, pale tawny-brown on the upper parts, from the chin to the tail white on the under-side; ears small round; below the corner of the mouth on each jaw is a brown spot; eyes black; tail 2 inches and a half long, pointed.

2. White with a few black hairs on the end of the tail.

16. *V. erminea*. Tail tipped with black.

1. Body pale reddish brown. *Stoat*.

2. Body white. *Ermine*.

*Pennant Brit. Zool.* tab. 7. n. 18. *Shaw Zool.* t. 99.

Body 10 inches long, pale reddish-brown or white, or white in some parts and brownish in others; edges of the ears and ends of the toes yellowish-white; tail 5 inches and a half long, always black on the lower part; hair short, and not so shining as in the Martin.

7. LUTRA. Otter.

17. *L. vulgaris*. Deep-brown, with 2 whitish spots on each side the nose, and one under the chin; feet naked; tail half as long as the body.

Otter. *Penn. Brit. Zool.* pl. 8. n. 19. *Shaw Zool.* pl. 100.

Body nearly 2 feet long; head broad, flat; mouth small, furnished with strong whiskers; lips thick; ears short, rounded; neck very thick; throat and breast cinereous; eyes small, placed over the nose; legs short, thick, destitute of hair; toes 5 on each foot, all connected by strong webs; tail 16 inches long, tapering, compressed.

8. URSUS. Bear.

18. *U. Arctos*. Blackish-brown, with a very short tail.

Common Bear. *Shaw Zool.* pl. 102. *Buffon* 8. pl. 31. 32.

Body about the size of a large calf, black to various shades of brown and grey, very shaggy; head tapering suddenly into the snout; ears short, rounded; toes 5 on each foot; thumb narrower than the rest.

19. *U. Meles*. Grey above, black underneath; a longitudinal black bend covering the eyes and ears; tail the colour of the body.

Badger. *Pennant Zool.* t. 18. n. 13. *Shaw Zool.* t. 106.

Body about 2 feet long, of a clumsy make, grey on the upper parts, with the throat, breast, belly, and legs black; face white, with a black pyramidal band extending from below the eyes over the ears; eyes very small; ears short, rounded; legs short, thick; claws on the forefeet long and straight; tail 6 inches long, between which and the vent is a transverse orifice exuding a white fetid substance.

9. TALPA. Mole.

20. *T. europæa*. Tail short: all the feet 5-toed.

Common Mole. *Shaw Zool.* t. 117. *Buffon* 8. t. 12.

Body hardly 6 inches long, thick, cylindrical, generally of a fine glossy black colour: *snout* slender: *eyes* extremely small, entirely hid in the skin: *external ears* none: *feet* extremely short, the fore-ones larger and inclining sideways; hind-ones pointing backwards: *claws* large and strong: *tail* an inch long: *skin* very tough, soft and silky.

10. SOREX. *Shrew.*

21. *S. araneus*. Reddish-brown, dirty-white underneath: tail hardly as long as the body.

Common Shrew. *Shaw Zool. t. 118. Buffon 8. t. 10. f. 1.*

Body about 2 inches and a half long, brownish with a ferruginous tint on the upper parts, whitish beneath: *snout* long and sharp-pointed, the upper jaw much longer than the under, and beset with long fine whiskers: *eyes* small and almost hid in the fur: *ears* short, rounded: *tail* about 2 inches long, covered with short dusky hairs: *legs* short, the hind-ones longer and placed close to the tail.

22. *S. fodiens*. Blackish, grey underneath: beneath the tail a triangular dusky spot: toes fringed: tail shorter than the body.

Water Shrew. *Penn. Zool. t. 11. Shaw Zool. t. 118.*

Body 3 inches and three quarters long, black on the upper parts, pale ash-colour underneath, the throat and breast sometimes pale ferruginous: *whiskers* long, ash-colour: *eyes* almost hid in the fur: *ears* minute, with a tuft of white hairs within: *legs* and *feet* white.

23. *S. ciliatus*. Entirely greyish-black: tail and toes with a white fringe underneath.

Fringe-tailed Water Shrew. *Sow. Brit. Misc. 1. pl. 49.*

Body about the size of the last, entirely blackish, and scarcely lighter underneath: *tail* with a fringe of white hairs underneath.

11. ERINACEUS. *Hedge-hog.*

24. *E. europæus*. Ears short, broad, rounded: nostrils bordered each side with a loose flap.

Hedgehog. Urchin. *Penn. Quad. t. 48. f. 3. Shaw Zool. t. 121.*

Body about 10 inches long, shaped like a hog: *snout* tapering, flat at the end, dusky and covered with a few hairs; the upper-lips cloven: *ears* hairy: *eyes* small, black, placed high in the head: *hair* of the head yellowish mixed with white; of the neck, feet, body, and tail darker, of the breast and belly the same with a yellowish mixture: *legs* short, dusky, nearly bare: *toes* long, divided the whole way; the thumb much shorter than the rest: *claws* long, weak: *spines* about an inch long, black in the middle and white at both ends; *tail* about an inch long.

## ORDER III. GLIRES.

12. CASTOR. *Beaver.*

25. *C. Fiber*. Deep chesnut: tail ovate, nearly flat, naked.

Beaver. *Br. Zool. t. 9. Shaw Zool. t. 128.*

Body about 3 feet long, thick and very convex on the back: *snout* obtuse: *eyes* small: *ears* short, covered with fur: *neck* short, thick: *feet* 5-toed, the hind-ones webbed: *tail* nearly a foot long, and 3 inches broad, covered with hair for about the fourth of its length: the remaining part naked and scaly like a fish, a little convex near the base.

13. MUS. *Mouse.*

26. *M. decumanus*. Tawny-grey, whitish underneath: tail very long, scaly: hairs of the body bristly.

Norway Rat. *Shaw Zool. t. 130. Buffon 8. t. 27.*

*Body* 9 inches long: *head* a little rounded in front; end of the *nose* whitish; *eyes* large black, prominent: *feet* and *legs* pale dirty flesh-colour, nearly naked; the fore-feet 4-toed with an additional claw: *tail* 7 inches and a half long, covered with minute scales mixed with a few hairs, and consisting of about 200 rings.

27. *M. Rattus*. Deep greyish-black, ash-coloured beneath: tail very long, scaly.

Black Rat. *Shaw Zool. t. 130. Buffon 8. t. 27.*

*Body* 7 inches long: *head* gradually tapering to the nose; *legs* dusky, nearly naked; fore-feet 4-toed with an additional claw: *tail* 8 inches long, consisting of about 250 rings.

28. *M. Musculus*. Brown, ash-coloured underneath: tail long, nearly naked: fore-feet 4-toed, hind-feet 5-toed.

Common Mouse. *Er. Zool. t. 11. Shaw Zool. t. 131.*

*Body* 3 inches and a half long, sometimes varying in colour to blackish, yellowish, spotted, or entirely white, with red eyes: *thumb* of the hind-feet without claw: *tail* as long as the body, scaly, nearly destitute of hair.

29. *M. sylvaticus*. Yellowish-brown, white underneath: breast white: tail long, nearly naked.

Wood Mouse. *Shaw Zool. t. 132. Buffon 7. n. 41.*

*Body* about 4 inches and a half long, yellowish-brown above, whitish beneath, the colours being distinctly separated on the sides; sometimes entirely white with red eyes: *head* rounded: *snout* rather obtuse: *eyes* large, black: *legs* and *feet* white: *tail* 4 inches long, slightly clothed with hair, blackish above, whitish underneath.

30. *M. messorius*. Rusty-brown, white underneath, a straight line along the sides dividing the colours: tail long, scaly: ears longer than the fur.

Harvest Mouse. *Brit. Zool. n. 29. Shaw Zool. 2 vign.*

*Body* 2 inches and a half long, weighing about the sixth of an ounce, a straight line along the sides dividing the colours of the back and belly: *ears* naked: *tail* 2 inches long.

31. *M. amphibius*. Blackish-brown, cinereous underneath: ears hardly above the fur: feet 3-toed with the rudiment of a fourth: tail about half as long as the body.

Water Rat. *Shaw Zool. p. 73. pl. 129.*

*Body* nearly 7 inches long, varying in size and colour: *head* large: *nose* thick, obtuse: *eyes* small: *ears* rounded, concealed in the fur: *hind-feet* sometimes 5-toed: *tail* about 4 inches long, covered with short black hair, whitish at the tip.

32. *M. arvalis*. Dusky-ferruginous, deep grey underneath: ears longer than the fur: fore-feet 3-toed, with the rudiment of a fourth: tail very short.

Meadow Mouse. *Shaw Zool. t. 136. Buffon 7. t. 47.*

*Body* 2 inches long, sometimes entirely blackish-grey: *head* large: *sloping*: *snout* obtuse: *eyes* prominent: *ears* reaching a little beyond the fur: *legs* very short: *tail* dusky, an inch and a half long, covered with short hair ending in a small tuft.

#### 14. SCIURUS. Squirrel.

33. *S. vulgaris*. Reddish-brown, white underneath: ears tip with a pencil of hairs: tail the colour of the back.  
2. Tail pure white.

Common Squirrel. *Fonst. Quad. t. 66. Buffon 7. t. 32.*

*Body* about 8 inches long, bright chesnut brown, with the breast and belly white; *eyes* large, black, lively: *ears* erect, with long tufts of hair of a deeper colour than the body: *legs* short, strong;



*Fore-feet* 4-toed, with an additional claw: *hind-feet* 5-toed: *toes* long: *claws* strong and sharp: *tail* about 7 inches long, clothed with long hair which is generally spread on each side.

## 15. MYOXUS. Dormouse.

- 34 *M. muscardinus*. Tawny-red, with the throat whitish: thumbs of the hind-feet without claws.

Common Dormouse. *Shaw Zool. t. 154. Buffon 8. t. 26.*

*Body* about 3 inches long, plumper than that of the mouse: *eyes* large, black, prominent: *ears* broad, rounded, thin, semitransparent: *tail* 2 inches and a half long, closely covered with hair, rather bushy at the tip.

## 16. LEPUS. Hare.

35. *L. timidus*. Pale rusty-brown, the chin and belly white: tail very short: ears longer than the head, tip with black.

Common Hare. *Shaw Zool. t. 162. Buffon 6. t. 38.*

*Body* about 2 feet long, of a rather slender make: *throat* and *breast* ferruginous: *head* oblong: *mouth* clothed with short hair on the inside: *upper-lip* cloven: *nostrils* moist, moveable: *eyes* large, yellowish brown, placed much outwards, furnished with a nictitant membrane: *whiskers* long, white: *fur* on the face, back and sides, white at the roots, black in the middle, tawny-red at the ends: *hind-legs* longer than the fore: *feet* covered underneath with fur: *tail* black above, white underneath.

36. *L. variabilis*. Tawny-grey, becoming pure white in the winter, except the tips of the ears and soles of the feet, which remain black: tail very short: ears shorter than the head.

2. The sides only turning white in the winter.

Alpine Hare. *Pennant Brit. Zool. tab. 16. n. 21.*

*Body* less than the last, in the summer the *head* greyish-tawny, *ears* and *back* tawny slightly mixed with black, *neck* inclining to ash-colour, *sides* becoming gradually whiter downwards, *belly* white, *soles* black and thickly covered with yellowish fur; *tail* composed of fewer joints.

37. *L. Cuniculus*. Ears tipped with black: hind-legs shorter than the body: tail short, nearly the colour of the body.

Rabbit. *Pennant Zool. t. 10. Shaw Zool. t. 162.*

*Body* about 18 inches long, in a wild state dusky-brown paler underneath, varying much in colour when domesticated: *ears* shorter than the head and more rounded: *tail* black above, white underneath.

## ORDER IV. PECORA.

## 17. CERVUS. Deer.

38. *C. Elaphus*. Reddish-brown, whitish underneath: horns branched, cylindrical, slightly bending backwards.

Stag, Red Deer. *Shaw Zool. t. 177. Buffon 6. t. 9. 10.*

*Body* about 3 feet and a half high, varying in size and colour, the younger-ones spotted with white: under the *eyes* on each side a distinct lachrymal furrow: *ears* long, pointed: *horns* a little flexuous, with sharp pointed ramifications varying in number.

39. *C. Dama*. Yellowish-brown, whitish underneath: horns compressed, branched, palmate at top, slightly recurved.

Fallow Deer. *Shaw Zool. t. 178, 179. Buffon 6. t. 27, 28.*

Body much smaller than the stag, brownish bay, whitish underneath on the inside of the limbs and beneath the tail, sometimes spotted, rarely entirely white: *ears* oval, pointed: *horns* flattened and dilated towards the tips where they are cut into several short branches: *tail* somewhat longer than that of the stag, bounded each side by a descending black line.

40. *C. Capreolus*. Reddish-brown, whitish underneath: *horns* erect, cylindrical branched, cloven at their tips.

Roe, Roebuck. *Brit. Zool. t. 4. Buffon 6. t. 32, 33.*

Body 3 feet 9 inches long, 2 feet 3 inches high before, and 2 feet 7 inches behind, weighing 50-60 pounds: *horns* 8 or 9 inches long, divided into 3 branches, longitudinally grooved in the lower part and very rugged: *fur* during the winter very long, the lower part of the hairs ash-colour with a narrow black bar near the end and tip with yellow: hairs of the *face* black tip with grey: *ears* long, pale yellow withinside, and covered with long hair: spaces about the *eyes* and *mouth* black: *breast*, *belly*, *legs*, and inside of the *thighs* yellowish-white: *rump* pure white: *legs* slender, with a tuft of long hair on the outside of the hind-leg below the joint: *tail* an inch long.

## 18. CAPRA. Goat.

41. *C. Hircus*. Horns carinate, bowed back, turning outwards towards the ends: chin bearded.

Common Goat. *Brit. Zool. t. 3. Shaw Zool. t. 199.*

Body varying in colour, but mostly various shades of grey, white or spotted: *head* thick: *horns* with a longitudinal ridge: *neck* and *limbs* robust: *tail* short, black.

## 19. OVIS. Sheep.

42. *O. Aries*. Horns compressed, twisting spirally outwards.

1. Without horns: tail hanging as low as the knees.

2. Without horns: nose turned upwards: under jaw much protruded.

3. Horned: tail short: wool short, coarse.

Common Sheep. *Johnst Quad. t. 22. Buffon 5. t. 1. 2.*

Body varying much in colour and size: *horns* large, wrinkled, angular with longitudinal ridges, turned backwards into a compressed spiral screw-like twist which comes down to the sides of the head after several turns: *eyes* bluish, with a large oblong pupil, and a deep furrow before the inner corner: *tail* round, frequently reaching to the knees.

## 20. BOS. Ox.

43. *B. Taurus*. Horns cylindrical, curving outwards: dewlaps lax, pendent.

2. Without horns.

Bull, Cow. *Brit. Zool. t. 2. Shaw Zool. t. 205.*

Body varying exceedingly in size and colour: *tail* sometimes ending in a tuft.

## ORDER V. BELLUÆ.

### 21. EQUUS. Horse.

44. *E. Caballus*. Hoofs solid: mane long, flowing: tail uniformly covered with long hair.

Horse. *Brit. Zool. t. 1. Shaw Zool. t. 214, 215.*

Body exceedingly variable in size and colour: *head* small, tapering: *ears* erect, pointed, not reaching to the eyes: *nostrils* very dilatible: *neck* small, tapering to the head: *legs* with a naked cal-

losity on the inside above the knee on the fore-ones, and another just under the knee on the hind-ones.

45. *E. Asinus*. Hoofs solid: over the shoulders a blackish cross: tail with long bristly hair at the extremity.

2. The hybrid produce of a male Afs and a Mare. *Mule*.

3. The hybrid produce of a Horse and a female Afs. *Hienny*.

Afs. *Shaw Zool. t. 216. Buffon 4. t. 11.*

Body less and more clumsy than that of the horse: head shorter and thicker: ears slouching and reaching beyond the eyes: neck thick: along the back a blackish stripe which is crossed by another on the shoulders: tail tipped with long hair: legs with a naked callosity on the inside above the knee on the fore-ones, but not on the hind-ones.

## 22. SUS. Swine.

46. *S. Scrofa*. Body bristly on the fore-part: tail hairy.

2. Hoofs undivided.

Common Hog. *Shaw Zool. t. 221, 222. Buffon 5. t. 14, 16, 17.*

Body thick and clumsy: ears oblong, acute: snout cartilaginous, truncate: tail clothed with hairs, shorter than the hind legs.

## ORDER VI. CETE.

### 23. MONODON. Narwhal.

47. *M. Monoceros*.

Sea Unicorn. *Saw. Brit. Miscel. t. 9. Shaw Zool. t. 225.*

Body 25 feet long, blackish on the back, white on the sides and belly with black spots and streaks gradually tapering to the tail: teeth projecting through the upper jaw, sometimes one sometimes two, about 7 feet and a half long, taper, pointed, very hard, white or yellowish-white, spirally twisted, with a slight groove: mouth rather small: front of the head very obtuse and rounded: spiracle doubled within: eyes small, black, placed about half way down: tongue long: pectoral fins small, black: back with the rudiment of a fin, and near the tail a hard ridge: tail with oblong lobes.

### 24. BALÆNA. Whale.

48. *B. Mysticetus*. Spiracles serpentine, on the middle of the head: back without fin.

Common Whale. *Shaw Zool. t. 226. Nat. Misc. 4. t. 133.*

Body from 50 to 90 feet long, generally black above and white beneath: head constituting nearly a third part of the whole body: upper-jaw obtuse and much narrower than the lower: lower-jaw pointed, and broader in the middle: mouth immense, long, curved like the letter *f*: tongue soft, adhering to the lower-jaw, white with black spots at the sides: upper-jaw furnished at the sides with a regular series of broad horny hairy plates, called Whalebone: eyes small, placed near the angles of the mouth: spiracles seated on a protuberance near together, and bent like the letter *S*: pectoral-fins broad, pointed, seated under the angles of the mouth: tail with rather acute lobes, from the middle of which a sharpish angular ridge runs up the middle of the back to about a third its length.

49. *B. Physalus*. Spiracles on the middle of the head: back with a fatty fin towards the lower extremity.

Fin-fish. *Shaw Zool. t. 227. Mart. Spitsb. p. 125. tab. 2.*

Body equal in length to the whale but much more slender, clear brown on the upper-part, white below: lips brown, with numerous oblique plaits like a twisted rope: upper-jaw furnished with laminae of whalebone, shorter and smaller than in the whale, of a blueish colour: spiracles seated on a small prominence: eyes placed far asunder as in the last, near the angles of the mouth: pectoral-fins a

little behind the eyes: *dorsal-fin* 3 or 4 feet long, a little falcate, acute: lobes of the *tail* lanceolate.

50. *B. Boops*. Spiracles placed on the snout: back with a cartilaginous protuberance near the tail.

Pike-headed Whale. *Shaw Zool.* t. 227.

Body about 46 feet long, and 20 in circumference, black above, white beneath: *belly* with numerous longitudinal plaits which are red on the inside: fore-part of the *back* convex and sloping down to the snout; *upper-jaw* a little rounded, furnished with numerous laminae of whalebone about a foot long: *lower-jaw* rather narrower and acute; *tongue* 5 feet long, wrinkled, liver-coloured: *nostrils* with 3 rows of circular convexities before them: *eyes* placed behind the spiracles: *ears* minute, behind the eyes: *spiracles* separated by a thin partition: *pectoral-fins* large, obovate-oblong, with rounded crenatures on the anterior part: *dorsal-fin* of a fatty-cartilaginous substance, placed above the vent, nearly perpendicular, behind which is a sharp ridge reaching to the tail: lobes of the *tail* oblong, slightly pointed.

51. *B. Musculus*. Spiracles on the front: lower-jaw much wider than the upper.

Round-lipped Whale. *Sib. Phalain.* 33. tab. T. 3.

Body 78 feet long, and 35 in circumference; black above, white beneath: *lower-lip* much broader than the upper, semicircularly turned up, with black laminae of whalebone about 3 feet long: *upper-lip* rather pointed: *tongue* 15 feet and a half long; *spiracles* pyramidal, on the forehead: *pectoral-fins* 10 feet long; *dorsal-fin* fat, about 3 feet high: *tail* 18 feet broad: *belly* full of plaits.

52. *B. rostrata*. Snout elongated, gradually tapering to a point: dorsal-fin fatty.

Rostrated Whale. *Shaw Natural Miscel.* 9. tab. 304.

Body about 25 feet long, very thick, dark blueish-brown above, white with a pale tinge of flesh-colour beneath, with numerous longitudinal plaits for about half its length: *upper-jaw* thinner than the lower, with a single tooth each side: *nose* long, depressed, nearly of the same thickness its whole length: *pectoral-fins* small, narrow: *dorsal-fin* small, near the tail: lobes of the *tail* rather long, pointed.

## 25. PHYSETER. Cachalot.

53. *Ph. macrocephalus*. Spiracle on the neck: back without fin.

Blunt-headed Cachalot. *Penn.* 3. t. 6. *Shaw* t. 228.

Body nearly 60 feet long, and 30 in girth, black, whitish underneath when advanced in age: *head* enormous, constituting a third part of the whole body, and separated from it by a transverse furrow: *upper-jaw* extremely blunt, nearly perpendicular, and about 9 feet high: *lower-jaw* thin and rather sharp, shorter than the upper, containing on each side 23 conic rather obtuse teeth which fit into correspondent sockets in the upper: *tongue* the shape of the lower-jaw, clay-coloured: *spiracle* simple externally, double within, seated on an angular prominence: *back* sometimes convex sometimes with a gibbosity: *eyes* small, black, remote from the nose, placed about half way down the head: *ears* very small: *pectoral-fins* placed near the corners of the mouth, about 3 feet long: lobes of the *tail* pointed. In a vast cavity in the head is found the substance called *spermaceti*, and in the intestines *ambergris*.

54. *Ph. Catodon*. Spiracle at the extremity of the snout: back without fin.

Round-headed Cachalot. *Shaw* 2. p. 501. *Penn.* 3. p. 63.

Body about 24 feet long: *head* rounded: *mouth* small: *back* without fin or protuberance, instead of which is a rough space: *teeth* larger and flat at top, marked with concentric circles.



55. *Ph. Microps*. Upper-jaw longer than the lower: back with a long dorsal fin.

Small-eyed Cachalot. *Shaw Zool. 2. p. 502.*

Body from 70 to 100 feet long, blackish above, whitish beneath: head large, nearly half the length of the body: eyes very small: teeth thick sharp, curved or straight: spiracle in the middle of the front: dorsal-fin pointed like a spine.

56. *Ph. Tursio*. Teeth flat at the tips: back with a very long erect fin.

High-finned Cachalot. *Penn. 3. p. 64. Shaw 2. p. 503.*

Body growing to 100 feet long: teeth slightly bent, compressed at the sides: spiracle placed in front; dorsal-fin extremely long pointed, erect, resembling the mast of a ship.

57. *Ph. bidens*. With a single tooth each side in the lower jaw: back with a single fin.

Two-toothed Cachalot. *Sow. Brit. Miscel. 1. tab. 1.*

Body 16 feet long, 11 in circumference, black above, nearly white below, with white vermicular streaks in every direction: snout long, pointed, nearly of equal thickness its whole length: lower-jaw blunt, longer than the upper: upper-jaw pointed, let into the lower by impressions corresponding with the teeth: mouth 1 foot 6 inches long: tongue smooth, vascular, small: eyes small, 6 inches behind the mouth: spiracle lunate, the ends pointing forwards: dorsal-fin shorter than the pectoral.

## 26. DELPHINUS. *Dolphin*.

58. *D. Phocaena*. Body somewhat conic, with broad back: snout suddenly sloping, rather obtuse.

Porpoise. *Shaw Zool. 2. tab. 229. 230. 231.*

Body 6 or 7 feet long, bluish-black above, white beneath: head sloping suddenly and rather obtuse: eyes very small: spiracle between the eyes, semilunar, with the ends pointing forwards: teeth small, rather sharp, about 46 in each jaw: tongue flat rounded, crenate on the edge: pectoral-fins placed near the belly: dorsal-fin straight, triangular, rather beyond the middle of the body.

59. *D. Delphis*. Body oblong, rather cylindrical: snout long, narrow, somewhat pointed.

Dolphin. *Shaw Zool. 2. t. 229. Jonst. pisc. t. 43.*

Body 8 to 10 feet long, rather convex on the back, black above, whitish beneath: snout long, nearly of the same thickness its whole length, pointed, with a broad transverse projection of the skin on its upper part: mouth very long: teeth conic, pointed, a little incurved, 21 in the upper-jaw, 19 in the lower, locking into each other: pectoral-fins placed very low; dorsal-fin a little falcate, acute, rather beyond the middle of the body: spiracles in middle of the head.

60. *D. Orca*. Body thick: snout spreading upwards: teeth obtuse.

Grampus. *Shaw Zool. tab. 232.*

Body 18--25 feet long, very thick, black on the back, with a large white spot on each shoulder, marbled on the sides with black and white, snow-white on the belly: head abrupt: nose flat, turned up at the end: lower-jaw much wider than the upper: teeth 30 in each jaw, the front ones slenderer and more obtuse: spiracle flat, of 2 cells, on the top of the neck: pectoral-fins very broad: dorsal-fin acute, 5 or 6 feet long.

61. *D. bidens*. With 2 teeth in the front of the upper-jaw.

Bottle-nose Whale. *Hunt. Philos. trans. 77. tab. 19.*

Body 21 feet long, resembling the Dolphin, but the snout is much shorter: front bulging out very much: teeth only 2, placed in front of the upper-jaw: pectoral and dorsal-fins very small, the latter placed near the tail.



## CLASS II. AVES. BIRDS.

Animals clothed with feathers, and furnished with two wings and two legs.

## A. LAND-BIRDS.

## ORDER I. ACCIPITRES.

*Bill more or less incurved, the upper-mandible either dilated towards the point, or armed with a tooth-like process each side: legs short, with 3 toes forwards and one backwards: toes warty underneath.*

1. FALCO. *Bill hooked, covered with a naked cere at the base: nostrils placed in the cere: tongue cloven: middle-toe connected with the outermost as far as the first joint.*
2. STRIX. *Bill hooked, without cere: nostrils oblong, covered with recumbent bristles: tongue cloven: head, ears, and eyes large: outmost toe capable of being turned backwards: exterior web of the outer quill-feather serrate.*
3. LANIUS. *Bill straight, hooked at the end, with a tooth each side of the upper mandible near the tip, naked at the base: tongue jagged at the end: outer-toe connected to the middle-one as far as the first joint.*

## ORDER II. PICÆ.

*Bill sharp-edged, convex above, without the tooth-like process on the upper mandible.*

1. *With 2 toes before and one behind.*

4. CORVUS. *Bill mostly straight, strong, pointed: nostrils covered with recumbent bristles: tongue cloven at the end: outer-toe connected to the middle-one as far as the first joint.*
5. CORACIAS. *Bill straight, slightly incurved at the point: tongue cloven: nostrils narrow, destitute of bristles: toes all divided to their origin.*
6. ORIOIUS. *Bill conic, a little convex, very acute, straight; the upper mandible a little longer, and slightly emarginate: tongue cloven, acute: nostrils at the base of the bill, partly covered: middle-toe connected near the base to the outermost.*
11. SITTA. *Bill straight, strong, pointed, the upper mandible a little longer, compressed and angular at the tip: nostrils covered with recumbent bristles: tongue short, with a horny jagged point: middle-toe closely connected to the others at the base; the back toe as large as the middle-one.*

13. **UPUPA.** *Bill* long, slender, slightly compressed, a little bowed: *tongue* arrow-shaped: *nostrils* small, near the base of the bill: *middle-toe* connected to the outmost at the base.
14. **CERTHIA.** *Bill* slender, bowed, acute: *tongue* shorter than the bill, pointed: *tail* of 12 stiff pointed feathers: *hind-toe* very large: *claws* long, hooked.
10. **ALCEDO.** *Bill* triangular, straight, strong, pointed: *nostrils* covered with feathers: *tongue* very short, flat, acute: *middle-toe* connected by the 3 lower-joints to the outermost.
12. **MEROPS.** *Bill* somewhat quadrangular, a little incurved, tapering to a point: *nostrils* small, at the base of the bill: *tongue* slender, jagged at the end: *middle-toe* connected as far as the middle joint to the outermost.
2. *With 2 toes before and 2 behind, all divided to their origin.*
7. **CUCULUS.** *Bill* roundish, weak, a little bowed: *nostrils* bordered by a narrow rim: *tongue* arrow-shaped, short, pointed: *tail* of 10 long wedge-shaped feathers.
8. **YUNX.** *Bill* roundish, slightly curved, weak: *nostrils* concave, without feathers: *tongue* very long, slender, cylindrical, with a horny point: *tail* of 10 even soft rounded feathers.
9. **PICUS.** *Bill* angular, straight, strong, wedge-shaped at the tip: *nostrils* covered with recumbent bristles: *tongue* very long, cylindrical, with a horny jagged point: *tail* of 10 stiff pointed feathers.

### ORDER III. PASSERES.

*Bill* conic, pointed: *nostrils* oval, pervious: *toes* slender, 3 before and 1 behind: *claws* slender, curved.

#### 1. *With a thick conic bill.*

18. **LOXIA.** *Bill* strong, convex above and below, very thick and rounded at the base; the lower mandible bent in at the edge: *nostrils* small, round, at the base of the bill: *tongue* entire, truncate.
19. **EMBERIZA.** *Bill* strong, conic; the sides of each mandible bending inwards; the upper-one narrower, with a hard gibbosity in the roof: *tongue* pointed, covered with a hard scale at the end.
20. **FRINGILLA.** *Bill* perfectly conic, slender towards the end, pointed: *tongue* covered at the end with a hard scale.

#### 2. *Upper mandible a little bent at the point.*

26. **HIRUNDO.** *Bill* short, small and a little incurved at the point, broad and depressed at the base: *nostrils*

open : *tongue* short, broad, cloven : *gape* larger than the head : *wings* long : *tail* forked.

27. CAPRIMULGUS. *Bill* short, a little incurved at the point, depressed at the base, with a row of stiff bristles at the base of the upper-mandible : *nostrils* tubular, a little prominent : *tongue* small, entire : *tail* entire, of 40 feathers : *toes* connected as far as the first joint ; the claw of the middle-one broadish and serrate.

3. *Upper mandible slightly notched near the point.*

16. TURDUS. *Bill* nearly straight, a little bending towards the point ; *nostrils* oval, naked : *mouth* with a few slender hairs at the corners : *tongue* slightly jagged at the end : *middle-toe* connected to the outer as far as the first joint.
17. AMPELIS. *Bill* straight, a little convex, bending towards the point : *nostrils* hid in reflected bristles : *tongue* sharp, cartilaginous, cloven : *middle-toe* connected to the outer at the base.
21. MUSCICAPA. *Bill* flattish at the base, nearly triangular, beset with bristles at the base : *tongue* cloven, rough on the sides : *toes* divided to their origin.

4. *Bill straight, taper, entire.*

15. STURNUS. *Bill* subulate, angular, depressed, rather obtuse ; the edges of the upper-mandible a little spreading : *nostrils* surrounded with a rim : *tongue* cloven, acute : *middle-toe* connected to the outer as far as the first joint.
22. ALAUDA. *Bill* straight, slender, a little curved at the point : *nostrils* partly covered with feathers and bristles : *tongue* cloven, acute : *toes* divided to their origin ; the hind-claw very long and more straight.
23. MOTACILLA. *Bill* straight, weak, slender, slightly notched at the end : *nostrils* covered with bristles : *tongue* lacerated at the point : *wings* short : *tail* very long.
24. SYLVIA. *Bill* straight, weak, slender : *nostrils* obovate, a little depressed : *tongue* cloven : *middle-toe* connected underneath to the outer-one at the base.
25. PARUS. *Bill* strong, pointed, a little compressed : *nostrils* round, covered with reflected bristles : *tongue* truncate, bristly at the end : *toes* divided to their origin, the back-toe large and strong.

#### ORDER IV. COLUMBÆ.

*Bill* nearly straight, tumid at the base : *legs* short : *toes* 3 before and 1 behind, divided to their origin.

28. COLUMBA. *Bill* weak, slender, descending towards

the point: *nostrils* oblong, lodged in a soft protuberance: *tongue* entire.

### ORDER V. GALLINÆ.

*Bill* convex; the upper-mandible arched over the lower: *nostrils* arched over with a cartilaginous membrane: *toes* rough underneath, divided to their origin.

29. PHASIANUS. *Bill* short, strong: *cheeks* more or less covered with caruncled flesh bare of feathers: *legs* generally armed with a spur.
30. TETRAO. *Bill* short, strong: *head* covered with a warty skin bare of feathers over the eyes: *nostrils* small, hid in the feathers: *tongue* pointed: *legs* feathered down to the toes.
31. PERDIX. *Bill* short, strong: *head* without the naked skin over the eyes, but often warty: *nostrils* covered above with a prominent callous rim: *legs* bare of feathers below the knees, often armed with spurs: *tail* short.
32. OTIS. *Bill* a little convex: *nostrils* ovate, open: *legs* bare of feathers above the knees: *toes* only 3, all placed forwards.

### B. WATER-BIRDS.

### ORDER VI. GRALLÆ.

*Bill* more or less cylindrical: *legs* long, naked above the knees: *toes* divided to their origin, or connected by a membrane at the base.

33. PLATALEA. *Bill* long, flattish, dilated and rounded at the tip: *nostrils* small, at the base of the bill: *tongue* short, acute: *feet* 4-toed, semipalmate.
34. ARDEA. *Bill* long, straight, acute, a little compressed, with a groove from the nostrils towards the tip: *nostrils* linear: *tongue* acute: *feet* 4-toed, the toes connected at the base.
35. TANTALUS. *Bill* long, subulate, nearly cylindrical, a little curved: *face* bald: *tongue* short: *jugular pouch* naked: *feet* 4-toed, palmate at the base.
36. NUMENIUS. *Bill* long, curved: *face* covered with feathers: *nostrils* linear, near the base of the bill: *tongue* short, acute: *feet* 4-toed, the toes connected as far as the first joint.
37. SCOLOPAX. *Bill* slender, straight, weak, obtuse, longer than the head: *nostrils* linear, lodged in a groove: *tongue* acute: *feet* 4-toed, the toes slightly connected or cloven to their origin; back-toe small.
38. TRINGA. *Bill* straight, slender, as long as the head: *nostrils* small: *tongue* slender: *feet* 4-toed, divided to



- their origin, or slightly connected; back-toe weak, and often raised from the ground.
39. *CHARADRIUS*. Bill straight, slender, obtuse: *nostrils* linear: *feet* 3-toed, all placed forwards.
40. *CURSURIUS*. Bill roundish, acute, slightly curved at the point: *gape* very large: *nostrils* ovate: *tongue* acute: *legs* very long, with 3 toes all placed forwards.
41. *HÆMATOPUS*. Bill long, straight, compressed, wedge-shaped at the end: *nostrils* linear: *tongue* short; *toes* 3, all placed forwards, the middle-one connected to the outer as far as the first joint.
42. *RALLUS*. Bill slender, compressed, slightly incurved: *nostrils* small: *tongue* rough at the end: *body* compressed: *wings* and *tail* short: *feet* 4-toed, cloven to their origin.
43. *GALLINULA*. Bill thick at the base, sloping to the point; the upper-mandible reaching far up the forehead, where it becomes membranaceous: *body* compressed: *wings* and *tail* short: *feet* 4-toed, cloven to their origin.

#### ORDER VII. PINNATIPEDES,

*Bill more or less cylindrical: legs long, naked above the knees: toes divided to their origin, with a membrane running down their whole length each side.*

44. *PHALAROPUS*. Bill straight, slightly inflected at the point: *nostrils* minute: *feet* 4-toed; the toes furnished with pinnate or toothed membranes.
45. *FULICA*. Bill short, strong, sloping to the point, running far up the forehead which is bald: *nostrils* oblong, pervious: *body* compressed: *tail* short: *toes* 4, furnished with a scalloped membrane.
46. *PODICEPS*. Bill straight, slender, pointed: *nostrils* linear: *tongue* slightly cloven: *lores* bare of feathers: *body* a little depressed: *tail* none: *legs* compressed; the shanks with a double row of serratures behind: *toes* 4, connected at the base, furnished with a simple membrane: *claws* flat, rounded.

#### ORDER VIII. PALMIPEDES.

*Toes connected with each other by a web.*

47. *RECURVIROSTRA*. Bill long, slender, very weak, depressed, bowed upwards: *nostrils* oblong, pervious: *tongue* short: *toes* 4, with deeply lunate webs; the back-toe small, lax, raised above the ground.
48. *ALCA*. Bill strong, thick, convex, compressed, often grooved: *nostrils* linear, placed near the edges



of the mandible: *tongue* nearly as long as the bill: *toes* 3, all placed forwards.

49. URIA. *Bill* strong, slender, pointed; the upper mandible slightly bending towards the point, covered with short feathers at the base: *nostrils* linear, in a hollow at the base of the bill: *tongue* nearly as long as the bill: *toes* 3, all placed forwards.
50. COLYMBUS. *Bill* strong, straight, pointed; upper-mandible longer, the edges of each turning inwards: *nostrils* linear: *tongue* long, pointed, toothed each side near the base: *legs* thin, flat: *toes* 4, the outer-one longer; back-toe small, connected by a small membrane to the inner-one: *tail* short, of 20 or more feathers.
51. STERNA. *Bill* straight, slender, pointed, a little compressed: *nostrils* linear: *tongue* slender, pointed: *wings* very long: *toes* 4, slender; the back-toe very small, and unconnected with the rest: *tail* mostly forked.
52. LARUS. *Bill* strong, straight, bending down at the point, with an angular prominence on the under part of the lower mandible: *nostrils* linear, broader on the forepart, placed in the middle of the bill: *tongue* slightly cloven: *legs* naked above the knees; *toes* 4; the back-toe small, unconnected.
53. PROCELLARIA. *Bill* a little compressed, hooked at the point: *nostrils* cylindrical, contained in a tube: *legs* naked a little above the knees: *toes* 3, placed forwards, with a spur pointing downwards instead of the back-toe.
54. MERGUS. *Bill* slender, a little depressed, with a crooked nail at the point; the edges of the mandibles with sharp serratures: *nostrils* small, somewhat ovate, in the middle of the bill: *toes* 3 forward, the outer-one longer, and one behind, furnished with a web.
55. ANAS. *Bill* broad, depressed, obtuse, with a nail at the point; the mandible edged with lamellate obtuse serratures: *nostrils* ovate: *tongue* broad, obtuse, fringed on the edges near the base: *toes* 3 forwards, the middle-one longer, and one behind unconnected.
56. PELECANUS. *Bill* long, straight, with a hooked nail at the point: *nostrils* concealed in a furrow: *face* and *gullet* bare of feathers: *toes* 4, all webbed together.

## ORDER I. ACCIPITRES,

1. FALCO. *Falcon*.A. *Legs feathered down to the toes.*

1. *F. fulvus*. Dark rusty-brown: bill blackish horn-colour: cere and toes yellow: tail with a white band.

Ring-tail Eagle. *Lewen t. 3. Walcot. 1. t. 4.*

*Length* 2 feet 9 inches: *extent of wings* 7 feet. *Bill and claws* blackish: *irids* hazel: *head and neck* inclining to rufous: *front* between the eyes and nostrils naked: *breast* marked with triangular spots: *tail* white for two-thirds of its length, black at the ends.

2. *F. chrysaetos*. Dark brown with ferruginous variations: bill deep blue: cere and feet yellow: legs clothed with yellow-ferruginous feathers: tail blackish, with grey undulations at the base.

Golden Eagle. *Br. Zool. t. 16. Lewen t. 2. Walc. t. 3.*

*Length* 3 feet: *extent* 7 feet 4 inches: *weight* 12 pounds.

*Eyes* dark brown: *iris* hazel: *head and neck* rich ferruginous-brown: *plumage* brown with tawny edges: *quill-feathers* chocolate-brown: *tail* blackish-brown, with cinereous undulations, white at the roots: *claws* black.

3. *F. Lagopus*. Variegated brown and whitish: head and neck yellowish-grey, with oblong brown marks: cere and feet yellow: tail-feathers brown, the upper half and tips white.

Rough-legged Falcon. *Br. Zool. app. t. 1. Lewen t. 14.*

*Length* 2 feet 2 inches.

*Bill* dusky, tip with black: *iris* yellow: *breast* yellowish-grey with brown marks: *belly* dusky-brown: *feathers of the legs* pale dull yellow with brown spots: *tail-coverts* white with brown streaks: *claws* blackish.

B. *Legs feathered to the knees or a little below.*

4. *F. Albicilla*. Head and neck pale ash-colour: body dark ash-colour clouded with brown: bill cere and legs yellow: tail-feathers white, the middle-ones tip with black.

Cinereous Eagle. *Br. Zool. 1. t. 18. Lewen t. 4. Walcot t. 1.*

*Length* 2 feet 9 inches: *extent of wings* 7 feet: *weight*

In Cumberland and the Scotch Islands. *Bill* yellowish horn-colour, elongated at the base: *iris* pale yellow: between the eyes and nostrils a bluish space, naked except a few bristles: *quill-feathers* very dark: *tail* dusky at the base, white except the tips of the middle feathers: *legs* feathered a little below the knees: *claws* black.

5. *F. ossifragus*. Ferruginous brown: bill bluish horn-colour: cere and legs yellow: tail-feathers white on the inner-webs.

Sea Eagle. *Br. Zool. t. 17. Lewen t. 1. Donovan t. 105.*

*Length* 3 feet 4 inches: *expansion* 8 or 9 feet. Maritime Woods. *Orbits* yellow: *iris* light hazel: *feathers of the head and upper-part of the neck* dull brown at the tips, tawny below the middle, and white at the base: *chin* with a few bristle-like hairs: *throat breast and belly* with a few white irregular patches: *tail-coverts* mottled with white: *legs* feathered below the knees. *Female* entirely dark-rusty-brown.

6. *F. Haliaetos*. Above brown, beneath white with a few brown spots: hind head and neck whitish: cere and legs blue.

Osprey. *Lewin t. 5. Walcot 1. t. 5. Donovan t. 70.*

*Length 25 inches: extent 5 feet 4 inches: weight 62 ounces.* Mountainous lakes. *Bill* black: *iris* yellow: *head* small, flat, the feathers brown with white margins: the back-part *throat* and *neck* white mixed with brown: from the eye is a brown band reaching nearly to the shoulder: feathers of the *back* and *wings* dull-brown edged with white: *breast* and *belly* white with rusty-brown spots: *legs* feathered just below the knees: 2 middle *tail-feathers* dusky-brown, the rest alternately barred on their inner webs with brown and white: *claws* black.

7. *F. Milvus*. Ferruginous-brown: head and chin grey with brown lines: cere and legs yellow: tail deeply forked.

Kite. *Lewin. t. 10. Donovan t. 47. Walcot 1. t. 10.*

*Length 27 inches: extent 5 feet and an inch: weight 44 ounces.*

*Woods.* *Bill* horn-colour: *iris* pale yellow: *neck* and *breast* ferruginous, the middle of the feathers black: *belly* ferruginous with fewer spots: *back* ferruginous, the feathers dark above in the middle with pale edges: outer *quill-feathers* dusky-black with obscure bars: *tail* bright ferruginous, the outer-feathers nearly black: *legs* feathered to the knees: *claws* black.

8. *F. Buteo*. Above brown: breast and belly dirty white with rusty-brown spots: cere and legs yellow: tail with dusky bars.

Buzzard. *Brit. Zool. t. 25. Lewin t. 6. Donovan t. 11.*

*Length 22 inches: extent 52: weight 32 ounces.*

*Woods.* *Bill* lead-colour, tip with black: *iris* white, tinged with red: *head* and upper part of the *breast* pale ferruginous; lower-breast with dirty-white blotches: *throat* and back of the head white with yellow-brown streaks: *scapulars* and *wing-coverts* tip with pale ferruginous and dirty white, the two last coverts with an edge of the same: *belly* white, with a few ferruginous spots: *thighs* deep ferruginous with deeper bars: inner-webs of the primary *quill-feathers* white towards the base: *tail* with blackish and cinereous bars, dull-white at the tip: *legs* feathered below the knees: *claws* black.

9. *F. apivorus*. Above deep brown, beneath white with red-brown transverse spots: head cinereous: cere dusky: legs dull yellow: tail with 2 dusky-brown bars.

Honey Buzzard. *Lewin t. 7. Albin 1. t. 2.*

*Length 23 inches: breadth 4 feet 1: weight 30 ounces.*

*Woods.* *Bill* black: *iris* yellow: *chin* yellow-white with narrow brown longitudinal streaks: *breast* and *belly* with transverse spots of white and red-brown: *tail* sometimes with a single cinereous band, and tip with white: *legs* feathered below the knees: *claws* dusky.

10. *F. aruginosus*. Chocolate-brown: crown and throat yellowish or whitish: cere greenish yellow: legs long, yellow.

Moor Buzzard. *Brit. Zool. t. 27. Lewin t. 8. Walcot. t. 8.*

*Length 21 inches: extent 4 feet 3: weight 20 ounces.*

*Moors.* *Bill* black: *iris* yellow: *body* chocolate-colour, with a ferruginous tinge: *crown* and *throat* varying to yellow whitish or rusty-brown: *legs* long, slender, feathered to the knees: *claws* black.

11. *F. palumbarius*. Deep brown above, white with numerous transverse black lines underneath; cere yellowish green: legs yellow: over the eyes a white stripe: tail with 4 or 5 blackish bands.

Goshawk. *Brit. Zool. t. 24. Lewin t. 9. Walcot t. 9.*

Length 22 inches or more.

Woods. Bill blue tipped with black: iris yellow: neck with a broken patch of white at the sides: wings reaching very little beyond the base of the tail: tail long, cinereous, with 4 or 5 dusky bands: legs feathered a little below the knees: claws black.

12. *F. gentilis*. Brownish-grey, with longitudinal brown spots: cere and legs yellow: tail with 4 blackish bands, tip with white.

Falcon gentil. *Br. Zool. t. 21, 22. Lewin t. 11. Walcot t. 11.*

Something larger than the last. Bill lead-colour: iris yellow: head pale ferruginous, with oblong darker spots: back brown: quill-feathers dusky, with dark bars on the outer webs, and white ones on the lower parts of the inner webs: wing-coverts and scapulars brown with a ferruginous edge: all the parts underneath yellowish-white, with oblong dusky spots, which in the young bird are transverse: tail with alternate black and grey bands, tip with white: legs feathered a little below the knees: claws black.

13. *F. islandicus*. Whitish with brown spots: cere and legs blue.

Jerfalcon. *Br. Zool. t. 19. Lewin t. 16. Walcot t. 15.*

Length 2 feet; extent 4 feet: weight about 3 pounds: North of Scotland. Bill bluish tipped with black, (yellow Penn.) iris blue: whole plumage white, with dusky spots lines or bars: legs feathered below the knees: claws blackish.

14. *F. peregrinus*. Above bluish, beneath whitish with transverse blackish streaks: cere and legs yellow: crown black: tail with brown bars, tip with white.

Peregrine Falcon. *Br. Zool. t. 20. Lewin t. 12. Donov. t. 53.*

Size of the Moor Buzzard: weight between 2 and 3 pounds. Bill short strong, bluish tipped with black: iris dusky: crown round the fore-part and under the eyes black: quill-feathers dusky with white transverse spots, inner-coverts with black and white bars: neck and breast with a few dusky lines pointing downwards: tail with several alternate blue and blackish bars: legs feathered to the knees: claws black.

15. *F. versicolor*. Variegated above with white and reddish brown: rump whitish underneath: neck and breast with ferruginous spots: quill and tail-feathers brown, with deeper bands: cere and legs yellow.

Spotted Falcon. *Br. Zool. t. 26. Lewin t. 13. Walcot t. 13.*

Size of the Buzzard. Bill blackish: iris yellow: crown and nape whitish, with pale reddish-brown spots: back and wings reddish-brown, the feathers edged with white: belly white: middle tail-feathers with white and deep brown bands, the rest with light and darker brown: legs feathered below the knees: claws black:

13. *F. cineraceus*. Head and upper-parts dark brownish-grey; underneath white, with ferruginous streaks: cere and legs yellow: outer quill-feathers black; tail with ferruginous bars.

Ash-coloured Falcon. *Montague Ornith. Dict. 1.*

Shot in Wiltshire. About the size of the Sparrow Hawk. Bill black: iris yellow: feathers on the upper-parts darker at the tips; of those underneath with large ferruginous streaks down the mid-



*diē*: wings, when closed, longer than the tail: greater wing-coverts dusky-black on the outer webs towards the middle, forming a small bar on the wings: 2 middle feathers of the tail brownish-grey, 3 next on each side light grey, outer-ones nearly white, all except the outer-ones barred with ferruginous: legs long, slender: claws short, black.

17. *F. griseus*. Above grey, white underneath with oblong black spots: cere eyelids and legs yellow: head dark brown, white behind: tail long, wedge-form: quill and lateral tail-feathers spotted with white.

Grey Falcon. *Br. Zool.* n. 49. *Lewin* t. 17.

Shot near Halifax, 1762. Size of a Raven.

*Bill* bluish: *iris* reddish: head small, flat; the sides and throat cream-colour: wings when closed, longer than the tail; the primary feathers black tipped with white, the rest bluish-grey with irregular white spots on their inner webs: tail-feathers, except the two middle-ones, spotted: legs long, feathered to the knees: claws blackish.

18. *F. Lanarius*. Above brown with paler edges; beneath yellow-white with brown longitudinal spots: cere greenish blue: legs blue: over the eyes a white stripe.

Lanner. *Br. Zool.* t. 23. *Lewin* t. 15. *Walcot* t. 16.

Less than the Buzzard. *Bill* blue: *iris* yellow: crown brown, with a yellowish-white mixture: beneath the eyes a black mark pointing downwards: chin and throat white: quill and tail-feathers dusky, with oval ferruginous spots on the inner-webs: legs feathered below the knees: claws black.

19. *F. cyaneus*. Blue-grey, paler underneath: cere and legs yellow: 6 first quill-feathers black, white at the base, slightly tipped with grey.

Hen Harrier. *Br. Zool.* t. 28. *Lewin* t. 18. *Donovan* t. 59.

Length 17 inches: extent 3 feet 3 inches: weight 12 ounces. *Bill* blackish: *iris* yellow: hind-head often spotted with pale brown: under the eye an arch of whitish feathers: vent white: tail-feathers white, grey on the outer-webs, the 2 middle-ones with dusky marks: legs feathered to the knees: claws black.

20. *F. Pygargus*. Above dull-brown, beneath paler with oblong rufous spots: cere and legs yellow: under the eyes a white arch surrounding the chin: tail with dusky bands, tipped with white.

Ring-tail. *Lewin* t. 18. *Walcot* t. 18. *Hayes* t. 2.

Length 20 inches: extent 3 feet: weight 20 ounces. *Bill* dusky: *iris* yellow: orbits whitish: under the eyes a whitish spot: feathers of the head, neck, and wing-coverts with rufous margins: rump white: legs long: claws black.

This has been supposed to be the female of the last.

21. *F. Tinnunculus*. Rufous, with black spots on the back and streaks underneath: cere and legs yellow: tail rounded, with a broad blackish bar near the end.

Kestrel. *Lewin* t. 19. 19\*. *Donovan* t. 51. 63.

Length 14 inches: extent 2 feet: weight half a pound.

Male. *Bill* bluish tipped with black: *iris* dusky: head and neck grey: under the eye a dusky streak pointing downwards: primary quill-feathers black with whitish tips: vent pale, spotless: tail grey, with a whitish tip: claws black.

Female larger. Head and neck nearly the colour of the back: under-parts paler with dusky streaks: tail with several dusky bars: legs with a tinge of green.



22. *F. Nisus*. Above rich brown, beneath orange-white, with brown undulations: cere greenish-yellow: legs yellow: on the back of the head an obscure white patch: tail with broad dusky bars.

Sparrow-hawk. *Lewin t. 20. Hayes t. 3. Walcot t. 20.*

*M. Length 12 inches: extent 2 feet; weight 6 ounces.*

*F. Length 15 inches: extent 2 feet 4 inches: weight 9 ounces.*

*Bill blue: iris yellow: upper-parts sometimes inclining to bluish-grey: quill-feathers dusky with black bars on the outer-webs, the inner-webs spotted with white below: breast of the male ferruginous, of the female whitish: tail whitish at the end: legs feathered to the knees: claws black. The whole bird is sometimes pure white.*

23. *F. Subbuteo*. Above bluish-black, beneath pale, with oblong brown spots: throat and nape white: eyes with a white line above them, and a black patch beneath: cere and legs yellow.

Hobby. *Lewin t. 21. Donovan t. 91. Walcot t. 21.*

*Length 12 inches: extent 2 feet 3 inches: weight 7 ounces.*

*Bill blue: iris brown: head and back deep bluish-black dashed with grey: chin and throat white, extending round the neck where it becomes darker: orbits yellow: wings reaching nearly to the end of the tail when closed: quill-feathers dusky-black, with oval ferruginous spots on the inner-webs: vent and thighs reddish-white: lateral tail-feathers with rusty bars on the inner-webs, whitish at the tips: legs feathered to the knees: claws black.*

24. *F. Aesalon*. Head ferruginous, with bluish black lines: body above bluish-grey with ferruginous streaks and spots, beneath yellowish-white, with oblong brown spots: cere and legs yellow.

Merlin. *Lewin t. 22. Donovan t. 94. Walcot t. 22.*

*Length 12 inches: extent 25 inches: weight 5 ounces and a half.*

*Bill lead-colour: iris brown: nape paler: quill-feathers blackish, with reddish oval spots: under wing-coverts brown, with round white spots: throat nearly white: tail with alternate dusky and reddish bands, whitish at the tip: legs feathered to the knees: claws black.*

## 2. STRIX. Owl.

25. *St. Bubo*. Head crested with ear-like feathers: body rufous, with black, brown and grey lines and spots.

Great-eared Owl. *Br. Zool. t. 29. Lewin t. 23. Walcot t. 23.*

*Size nearly equal to an Eagle. Bill bluish: iris yellow: plumage entirely a mixture of ferruginous black, brown, and grey, paler underneath: wings long: tail short, with dusky bands: legs thickly clothed with testaceous down quite to the claws: claws much hooked, dusky.*

26. *St. Otus*. Head with ear-like crests, consisting of 6 feathers each: body orange, with blackish streaks: quill-feathers with black and grey bands.

Long-eared Owl. *Br. Zool. t. 30. Lewin t. 24. Walcot t. 24.*

*Length 15 inches: extent 3 feet: weight 10 ounces.*

*Bill blackish: iris orange: feathers of the crest gradually lengthening, black with a dull yellow border: face surrounded with a white circle, speckled with black and rufous: cheeks pale rufous: over the eyes and round the angle next the bill black: primary quill-feathers with two dull yellow bars: thighs and vent unspotted: tail with grey and dusky bar and specks: legs clothed with pale yellow down quite to the claws: claws dusky.*

27. *St. Brachyotus*. Head with short ear-like crests: body dull orange, beneath yellow, with brown longitudinal spots: middle tail-feathers with a yellow spot inclosing a brown one.

Short-eared Owl. *Br. Zool. t. 31. Lewin t. 25. Donovan t. 35.*

*Length 14 inches: extent 3 feet: weight 14 ounces.*

*Bill dusky: iris yellow: orbits black: face surrounded with a line which is black and white, except at the ears where it is black: crest, which it can erect at pleasure, composed of several feathers, black on the outer webs, white on the inner: feathers of the head, back, and wing-coverts brown with a tawny margin: breast and belly paler, with longitudinal brown lines. thighs not spotted: legs clothed to the toes with light yellow down: claws dusky.*

28. *St. stridula*. Head without crest: brown-orange above with dark-brown marks, beneath paler with oblong dark spots: third quill-feather longest.

Tawny Owl. *Lewin t. 7. Donovan t. 121. Walcot. t. 27.*

2. Body darker: iris black.

Brown Owl. *Br. Zool. t. 32. Lewin t. 28.*

*Length 14 inches: extent 2 feet 8 inches: weight 20 ounces.*

*Bill pale brown: iris dusky: face encircled by a black and white line: outer-webs of the outer-scapulars white: secondary quill feathers with a white spot on the outer-webs: two middle tail-feathers tawny, the rest with tawny and dark lines and spots: legs clothed to the toes with greyish down: claws black.*

29. *St. Utula*. Head without crest: body above reddish with longitudinal brown spots, underneath whitish with brown lines: tail with brown bars.

Brown Owl. *Lath. syn. 1. p. 140. Buffon 1. t. 27.*

*Length 15 inches and a half: weight 14 ounces.*

*Iris yellow: general colour browner than the last; and the spots larger and longer, tending to a point like the flame of a candle, which in the former are more rounded like drops.*

30. *St. flammea*. Head without crest: body above pale yellow with white and grey spots, underneath white with blackish spots.

Screech Owl. *Lewin t. 26. Donovan t. 113. Walcot. t. 26.*

*Length 14 inches: extent 3 feet: weight 12 ounces.*

*Bill light brown: iris dusky: orbits orange: cheeks white: face surrounded with a white circle: primary quill-feathers yellow on the outer webs, white on the inner, with 4 black spots each side: inner-webs of the tail-feathers white, outer-webs with dusky bands: legs clothed with white down to the claws: claws light brown, the middle one serrate.*

31. *St. passerina*. Head without crest: above olive-brown, beneath whitish spotted with brown: head spotted with white: quill-feathers with 5 rows of white spots.

Little Owl. *Lewin t. 28. Walcot. t. 28. Albin 2. t. 12.*

*Length 8 inches: extent 21 inches. Size of a Blackbird.*

*Bill yellowish: iris yellow: feathers encircling the face white tip with black: breast mixed ferruginous and white: tail brown with dull rufous bands: legs clothed to the claws with whitish down: claws pale brown.*

### 3. LANIUS. Shrike.

32. *L. Excubitor*. Tail wedge-form, blackish with the sides white: head and back pale cinereous; wings blackish with a white band.

Butcher-bird. *Br. Zool. t. 33. Lewin t. 29. Donovan t. 87.*

*Bill* blackish: *iris* dusky: *mouth* beset with strong bristles: from the base of the bill across the eyes a blackish stripe: *head, neck, and back* hoary-grey: *scapulars* white: *wings* hardly as long as the rump, the coverts black: *quill-feathers* black, with a broad white band, some of them tipped with white: *throat breast and belly* dirty-white: 2 middle *tail-feathers* black, the others becoming whiter, the outer-ones white: *legs* black. *Female* with transverse semicircular brown lines on the breast and belly.

33. *L. Collurio*. Tail wedge-form, white at the edges: head and neck pale cinereous: back and wing-coverts bright ferruginous:

Red-backed Shrike. *Lewin t. 30. Albin 2. t. 14. Walcot t. 30.*

*Length* 7 inches and a half: *extent* 11 inches: *weight* 2 ounces.

*Bill* lead-colour: *iris* hazel: from the bill through the eyes a blackish stripe: *scapulars* bright ferruginous: *quill-feathers* brown, with a lighter edge on the outer-webs: *rump* pale grey: from the chin downwards pale blossom colour: *vent* white: middle *tail-feathers* black, the rest white on the outer edge, the 2 outermost nearly all white: *legs* dark brown. *Female* with transverse semicircular brown lines: upper-part of the *head and neck* ferruginous: *tail* ferruginous, dusky near the end.

34. *L. rufus*. Tail wedge-form: head, neck and back ferruginous: shoulders white: quill-feathers black, with a whitish spot near the tip.

Wood-chat. *Lewin t. 31. Donovan t. 84. Walcot t. 31.*

About the size of the last. *Bill* horn-colour, with whitish feathers at the base: *iris* hazel: from the base of the bill through the eyes a blackish stripe: upper-part of the back dusky: *wing-coverts* dusky: from the chin downwards yellowish-white: *tail-feathers* blackish, the margins and tips whitish, except the 2 middle-ones: *legs* dusky. *Female, head and neck* reddish with brown transverse lines, beneath dirty-white with brown curved transverse lines: *tail* reddish-brown, with a dark band near the end, and tipped with red.

## ORDER II. PICÆ.

### 4. CORVUS. Crow.

35. *C. Corax*. Deep black; the upper-parts with a bluish gloss: tail a little rounded.

Raven. *Lewin t. 32. Albin 2. t. 20. Walcot t. 32.*

*Length* nearly 2 feet: *extent* 4 feet: *weight* 3 pounds.

*Bill* blackish, strong, thick, nearly 3 inches long: *nostrils* covered with bristles reaching half way down the bill: *iris* dusky: under-parts dusky, without gloss: *legs* black. Sometimes found pied, or entirely white.

36. *C. Corone*. Deep black, with a bluish gloss all over: tail rounded, with the feathers pointed.

Carriage Crow. *Er. Zool. t. 34. Lewin t. 33. Walcot t. 33.*

*Length* 18 inches: *extent* 26 inches: *weight* 20 ounces.

*Bill* black, a little convex near the tip: *nostrils* covered with bristles: *iris* dusky: *plumage* black, with a violet-blue gloss, less shining underneath: *legs* black.

37. *C. frugilegus*. Deep black, with a bluish gloss above: front bare of feathers and grey: tail a little rounded.

Rook. *Lewin t. 34. Albin 2. t. 22. Walcot t. 34.*

Rather larger than the last. *Bill* black, gradually tapering: *iris* dusky: *nostrils* without bristles: above the base of the bill, be-

tween that and the eyes, and thence to the chin, whitish scurfy and bare of feathers in the old birds: legs black: inner-edge of the middle-claw ferrate.

38. *C. Cornix*. Light ash-colour: head, throat, wings, and tail glossy bluish-black.

Hooded crow, *Lewin n. 35. Donovan t. 117. Walcot t. 35.*

Length 22 inches: extent nearly 3 feet: weight 22 ounces.

Bill a little convex: head, under-side of the neck, point of the breast, wings tail and legs, glossy violet-black, the other parts pale cinereous. Female with the throat bluish-grey.

39. *C. Monedula*. Pale bluish-black: hind-head and back of the neck grey: front, wings, and tail black.

Jackdaw. *Lewin t. 36. Albin n. t. 14. Walcot t. 36.*

Length 13 inches: extent 28 inches: weight 9 ounces.

Bill a little curved at the point: iris light-grey: tail slightly rounded: legs blackish. Is sometimes found without the grey on the head and neck, sometimes mixed black and white, or entirely white.

40. *C. glandarius*. Vinaceous buff-colour: head white with black strokes: wing-coverts with blue and black bars: tail black.

Jay. *Lewin t. 38. Donovan t. 2. 34. Walcot t. 37.*

Length 13 inches: extent 21 inches: weight 7 ounces.

Bill dusky: iris whitish: under the eyes a broad black streak from the angles of the mouth: chin whitish: crown with long feathers, capable of being erected into a crest: greater wing-coverts blue with transverse black and white lines: lesser-ones bay, the rest black: greater quill-feathers dusky, grey on the outer-webs, except the first; 6 secondary-ones black, the outer-webs white near the base, and tinged with blue; 2 next black; those next the body are tipped with black: rump and tail-coverts white: legs pale brown: claws dusky.

41. *C. Pica*. Black, with a blue green and purple gloss: scapulars, breast, and upper part of the belly white: tail long, wedge-form.

Magpie. *Lewin t. 40. Donovan t. 95. Walcot t. 39.*

Length 18 inches: extent 22 inches: weight about 9 ounces.

Bill dusky: eyes dark-brown: vent black: 10 first quill-feathers white on the middle of the inner-webs: tail 9 inches and a half long, and like the wings with a rich variable gloss of blue, green, and purple: legs and claws black.

42. *C. caryocatactes*. Rusty-brown, with triangular white spots: crown and wings blackish: tail blackish, tipped with white, the middle feathers as if worn.

Nutcracker. *Br. Zool. app. t. 3. Lewin t. 37. Donovan t. 80.*

Length 4 inches: extent 21 inches: weight

Bill dusky: iris hazel: upper-part of the head and nape blackish: vent white: tail rounded: legs dusky: claws black.

43. *C. Graculus*. Black, with a violet gloss: bill and legs orange-red.

Red-legged Crow, Chough. *Br. Zool. t. 35. Lewin t. 39. Walc. t. 40.*

Length 16 inches: extent 33 inches: weight 13 ounces

Bill nearly 2 inches long, curved, slender, sharp-pointed: iris hazel: bristles at the base of the bill not covering the nostrils: legs long, slender: claws black.

##### 5. CORACIAS. Roller.

44. *C. garrula*. Head, neck, breast and belly pale bluish-green: back and scapulars red-brown: coverts on



the ridge of the wing, lower-part of the quills and rump rich blue: upper-part and tips of the quills dusky.

Roller. *Br. Zool. app. t. 2. Lewin t. 41. Donovan t. 33.*

*Length* 12 inches and a half: size of the jay.

*Bill* dusky, with bristles at the base, not covering the nostrils: *iris* light hazel: *orbits* rather bare of feathers: *coverts* on the ridge of the wing rich blue, beneath them pale green: *tail* forked, light blue, the outer-feathers striped with black above, beneath with deep blue; the rest dull green: *legs* dirty-yellow: *claws* blackish.

## 6. ORIOLES. Oriole.

45. *O. Galbula* Golden yellow: lores black: wings black with a yellow patch in the middle: tail black, the outer-feathers yellow on the lower half.

Golden Oriole. *Br. Zool. app. t. 4. Lewin t. 42. Donovan t. 7.*

*Length* 9 inches and a half: size of the black-bird.

*Bill* brownish-red: *iris* red: *wings* with yellow marks near the back: 2 middle *tail-feathers* black, inclining to olive at the base, tip with yellow: *legs* lead-colour: *claws* black.

*Female* dull green-brown where the male is yellow: *wings* dusky: *tail* dirty-green, whitish at the ends, except the 2 middle-feathers.

## 7. CUCULUS. Cuckow.

46. *C. canorus*. Brownish-grey: neck and breast whitish with transverse undulate blackish streaks: tail rounded, blackish; the outer feathers spotted with white.

Common Cuckow. *Br. Zool. t. 36. Lewin t. 44. Donovan t. 41.*

*Length* 14 inches: *extent* 25 inches: *weight* 5 ounces.

*Bill* yellow with a dusky tip: *iris* yellow: margins of the *eyelids*, *gape*, and *palate* saffron-red: *wings* reaching nearly to the end of the tail; the feathers dusky, with oval white spots on the inner-webs: *tail* of 10 very unequal feathers, the 2 middle-ones blackish, all tipped with white: *legs* very short, yellow: *claws* dusky.

*Female* with the neck and breast tawny-brown, with dusky bars: *wing-coverts* with pale rusty spots. *Young bird* brown, the feathers edged with white.

## 8. YUNX. Wryneck.

47. *Torquilla*. YUNX.

Wryneck. *Lewin t. 51. Donovan t. 83. Walcot t. 44.*

*Length* 7 inches: *extent* 11 inches: *weight* 10 drachms.

*Bill* pale lead colour: *tongue* 2 inches and a quarter long, misshapen, cylindrical: *iris* light hazel: top of the head and back divided by a list of black and ferruginous strokes: upper part of the head and neck, back, rump; and upper *tail-coverts* cinereous, with dusky transverse undulate lines: chin and forepart of the neck yellowish-white, with transverse dusky lines: lower-part of the breast belly, and sides whitish, with triangular dusky spots: *wing-coverts* dull rufous, with grey spots: greater *quills* dusky, with quadrangular ferruginous spots on the outer-webs: *tail* rounded, cinereous, with 4 dusky bars: *legs* brown: *claws* dusky.

## 9. PICUS. Woodpecker.

48. *P. martius*. Black, the crown of the head rich scarlet.

Great black Woodpecker. *Lewin t. 45. Donovan t. 13. Walcot t. 45.*

*Length* 17 inches and a half: size of a jackdaw.

*Bill* dark-grey, whitish on the sides: *iris* pale yellow: *tail-feathers* pointed, the 2 middle-ones longer: *legs* lead colour, covered on the fore-part with feathers half their length: *claws* black.

*Female* rusty-brown, the hind part of the head only scarlet.



49. *P. major*. Variegated with black and white: vent bright crimson: male with a bar of crimson across the nape.

Great spotted Wood-pecker. *Lewin t. 48. Walcot t. 48.*

*Length* 9 inches: *extent* 16 inches: *weight* 2 ounces and 3 quarters.

*Bill* dusky: *iris* red-brown: *front* dirty-white: *crown* glossy-black: *cheeks* white, with a black line beneath from the corner of the mouth to the back of the head, and another running down each side from the middle of it and nearly meeting on the breast: *neck* with a black spot each side: *throat* and *breast* yellowish-white: *belly* white: *vent* and hind-part of the *thighs* fine crimson: *back*, *rump*, and *tail-coverts* and lesser *wing-coverts* black: *scapulars* and *coverts* next them white: *quills* black, with white round spots on each web: 4 middle *tail-feathers* black, the rest white towards the points with black spots: *legs* lead-colour: *claws* black.

*Female* without the crimson bar on the nape.

50. *P. medius*. Variegated with black and white: crown and vent bright crimson.

Middle-spotted Woodpecker. *Br. Zool. t. 37. Lewin t. 49.*

*Length* 8 inches and a half: less than the last.

Differs from the former, of which it is probably the young bird, in having the whole *crown* red, and the white about the *eyes* and *neck* larger, and the *breast* inclining to brown.

51. *P. minor*. Variegated with black and white: crown in the male crimson, in the female white: vent dirty white.

Lesser spotted Woodpecker. *Br. Zool. t. 37. Lewin t. 50.*

*Length* nearly 6 inches: *extent* 11: *weight* not an ounce.

*Bill* lead-colour: *iris* red: *front*, *throat*, *breast* and *belly* dirty-white: *lores* white, bounded each side by a black line running down to the shoulders, which are black: *back* and *wings* with black and white bars: 4 middle *tail-feathers* black, the rest more or less white spotted with black: *legs* lead-colour: *claws* black.

52. *P. villosus*. Variegated with white and black; white underneath: down the middle of the back a stripe of white hair-like feathers: 2 outer tail-feathers white: male with a red band across the hind-head.

Hairy Woodpecker. *Lewin t. 47. Walcot t. 47.*

*Length* 8 inches and 3-quarters: *weight* 2 ounces.

*Bill* lead-colour: *iris* dull red: *head* black, with 2 white lines each side from the mouth, one over the eye, the other under it: upper parts of the *body* black; the back divided by a list of loose-webbed hair-like white feathers: *wings* spotted with white: 4 middle *tail-feathers* black, the next obliquely white at the tips, the last but one white with a black base, the outer-ones wholly white: *legs* lead-colour: *claws* black.

*Female* without the red band across the head.

53. *P. Viridis*. Green: head grey, with scarlet spots: tail with dusky bars.

Green Woodpecker. *Lewin t. 46. Donovan t. 37. Walcot t. 46.*

*Length* 13 inches: *extent* 20 and-a-half: *weight* 6 ounces and a half.

*Bill*, *legs* and *claws* horn-colour: *iris* whitish: *orbits* black, beneath which in the male is a scarlet spot bordered with black: *body* beneath pale green: *rump* yellow green: *quill-feathers* dusky, with round white spots on each web, the corner-ones green on the outer webs: edges of the wings variegated black and white: *tail* with green and dusky bars, the tip dusky.

*Female* without the scarlet on the chin.

10. *ALCEDO. Kingsfisher.*

54. *A. ispida.* Crown and wing-coverts blackish green, with bright azure lines: lores red-orange: chin and spot each side the neck white: back and rump bright azure: breast and belly dull rufous.

*Kingsfisher. Brit. Zool. t. 38. Lewin t. 53. Donovan t. 100.*

*Length 7 inches: extent 11 inches: weight an ounce and a quarter. Bill 2 inches long, black, tinged with orange at the base of the lower mandible: iris hazel: across the eyes a reddish band, under which is a dark-blue stripe: throat buff-colour: scapulars and upper tail-coverts bright azure: tail short, deep blue: legs red-orange: claws blackish.*

11. *SITTA. Nuthatch.*

55. *S. Europæa.* Bluish-grey, beneath pale rufous: lore black; 4 lateral tail-feathers black, white toward the tip.

*Nuthatch. Br. Zool. t. 38. Lewin t. 52. Donovan t. 81.*

*Length nearly 6 inches: breadth 9 inches: weight 6 drachms. Bill black, whitish at the base of the lower mandible: iris hazel: from the upper mandible across the eyes a black stripe turning abruptly down the neck: chin and cheeks whitish: quills dusky: vent varied white and ferruginous: tail short, 2 middle-feathers bluish-grey, the rest black, more or less marked with grey and white: legs yellowish-grey: claws large, dusky.*

12. *MEROPS. Bee-eater.*

56. *M. apiaster.* Head and back chesnut: lores black: throat yellow: breast and belly green-blue: 2 middle tail-feathers of the male longer.

*Bee-eater. Lewin t. 43. Sowerby Misc. t. 69.*

*Length 10 inches. Bill blackish: iris dull red: front blue green, behind it green: throat divided from the breast by a curved black line: sides of the back golden-yellow, with a chesnut tinge: shoulders orange shaded with green: smaller wing-coverts green, some of the greater edged with blue, the rest chesnut tipped with black: quills rich blue: rump blue: tail sea-green, the 2 middle-feathers in the male nearly an inch longer than the rest: legs short, pale-red: claws blackish.*

13. *UPUPA. Hoopoe.*

57. *U. Epops.* Variegated with black, white, and pale rufous: head with a pale rufous crest, tipped with black: tail black, with a white band.

*Hoopoe. Br. Zool. t. 39. Lewin t. 54. Donovan t. 9.*

*Length 12 inches: extent 19 inches: weight 3 ounces. Bill 2 inches and a half long, blackish: iris dark hazel: crest of a double row of dull orange feathers tipped with black: sides of the head, neck and breast pale rufous, in the young bird the breast and belly spotted with black: upper part of the back brown: quill-feathers black, with white bands: rump, lower-part of the belly and vent white: tail of 10 feathers, the outer-ones white on the outer edges, except the tip: legs short, black.*

14. *CERTHIA. Creeper.*

58. *C. familiaris.* Tawny-grey, beneath white: head with black and yellow-brown streaks: wings brownish, 10 of the feathers with a white spot.

*Creeper. Brit. Zool. t. 39. Lewin t. 55. Walcot t. 54.*

*Length* 5 inches : *extent* 7 and a half : *weight* 5 drachms.  
*Bill* brown : *iris* hazel : above the *eyes* a stroke of white : *quills* dusky, *tipt* with white, variegated with black : *shoulders* and *lesser coverts* tawny spotted with white : *rump* tawny : *tail* tawny, of 12 stiff pointed feathers : *legs* brown.

## ORDER III. PASSERES.

15. STURNUS. *Star.*

59. *St. vulgaris*. *Bill* yellow : *body* glossy-black, with yellowish-white spots.

*Starling*. *Br. Zool. t. 46. Lewin t. 56. Walcot t. 195.*

*Length* 8 inches 3 quarters : *extent* 14 inches : *weight* 3 ounces.  
*Bill* in the young bird bluish at the base : *iris* hazel : *head, neck,* and upper parts of the *back* black, with a purple and green gloss : lower part of the *back, breast, wing-coverts* and *rump* black, with a dark-green shade : *quill-feathers* and *tail* dusky, the former edged with yellow on the outer-web, the latter with dirty white : *legs* reddish-brown. *Young bird* dusky brown.

16. TURDUS. *Thrush.*

60. *T. viscivorus*. Above brown, beneath yellowish-white with dusky spots : 3 outer tail-feathers *tipt* with white.

*Miscel Thrush. Lewin t. 61. Albin 1. t. 33. Walcot t. 197.*

*Length* 11 inches : *extent* 16 and a half : *weight* near 5 ounces.  
*Bill* dusky, the base of the lower-mandible yellowish : *iris* hazel : *head, back,* and lesser wing-coverts olive brown ; lower part of the back with a yellow tinge : sides of the *head* and *throat* whitish, with blackish spots : larger *wing-coverts* *tipt* with white : *quills* brown, with a mixture of grey on the outer-webs : *legs* pale yellowish-brown : *claws* dusky.

61. *T. musicus*. Above brown, beneath yellowish-white, with blackish arrow-shaped spots : *quill-feathers* ferruginous on the inner base.

*Throistle, Song Thrush Lewin t. 62. Walcot t. 198.*

*Length* 9 inches : *extent* 13 and a half : *weight* 3 ounces.  
 Differs from the last in having the upper-parts more uniformly brown, the spots underneath arrow-shaped and pointing upwards, and the inner-wing-coverts yellow.

62. *T. Ericetorum*. Above brown, beneath yellowish-white, with blackish arrow-shaped spots : across the eyes a blackish stripe.

*Heath Thrush. Lewin's Brit. birds. ii. tab. 63.*

Resembles the last, but is heavier ; the neck not so long, the chin whiter, across the eyes a short blackish stripe, and the tail is half an inch shorter.

63. *T. iliacus*. Above brown, beneath whitish, with blackish spots : over the eyes a whitish line : under-parts of the wings and sides reddish-orange.

*Red-wing. Lewin t. 64. Walcot. t. 199. Albin 1. t. 35.*

*Length* 8 inches and a half : *weight* near 2 ounces and a half.  
*Bill* blackish, with a dusky base : *iris* hazel : under the eyes a dusky patch : lower part of the *belly* and *vent* white.

64. *T. pilaris*. Head grey, spotted with black : back and wings chesnut-brown : breast reddish-yellow, spotted with black : tail black, the outermost feathers whitish on the inner-margin at the tip.

Field fare. *Lewin t. 65. Albin 1. t. 36. Walcot t. 200.*

*Length 10 inches: extent 17 inches; weight about 4 ounces.*

*Bill yellowish, tip with black: eyes hazel: neck and cheeks grey: throat white: quill-feathers rusty-brown, with paler edges: rump grey: belly and vent white: middle tail-feathers with a mixture of grey: legs dusky.*

65. *T. Merula*. Black: bill and edges of the eyelids yellow.

Blackbird, Ouzel. *Br. Zool. pl. 47. Lewin t. 60. Walcot t. 201.*

Above 10 inches long. *Male*, when full grown, deep-black, with the bill, eyelids and mouth yellow; the legs yellowish.

*Female* and young bird dark rusty-brown, with the bill and eyelids dusky. It is sometimes varied with black and white, and sometimes entirely white.

66. *T. torquatus*. Dusky-black: breast with a white patch, extending towards the neck: eyelids dusky.

Ring ouzel. *Lewin t. 59. Donovan t. 61. Walcot t. 202.*

*Length 11 inches: extent 17 inches: weight*

*Bill blackish yellow: iris hazel: plumage black, with a grey edge: legs brown. Female with the patch on the breast, light brown. In the young birds it is wanting.*

67. *T. Cinclus*. Blackish brown: cheeks, throat, and breast white: upper-part of the belly reddish-brown, lower-part and tail blackish.

Water ouzel. *Lewin t. 57. Donovan t. 24. Walcot t. 196.*

*Length above 7 inches: extent 11: weight 2 ounces and a half.*

*Bill black: iris hazel: head and neck blackish-brown: plumage of the back and wings edged with dark grey: legs on the fore-part and toes whitish, dusky behind. In the young bird the belly is white.*

68. *T. roseus*. Head slightly crested behind: body pale rose-colour: head, neck, wings, and tail, glossy black

Rose-coloured Ouzel. *Brit. Zool. app. t. 5. Lewin t. 58.*

*Length 8 inches: less than the blackbird.*

*Bill dirty flesh-colour, tip with black: iris pale: head, crest, neck, wings and tail black, glossed with a changeable blue purple, and green: back, rump, shoulders, breast and belly pale rosy, with a few black spots: legs dirty orange: claws hooked, brown.*

## 17. AMPELIS. Chatterer.

69. *A. garrulus*. Head slightly crested behind: body reddish-grey: back and wings dusky: throat and tail black: secondary quill-feathers with a membranous vermilion tip.

Waxen Chatterer. *Br. Zool. t. 48. Lewin t. 66. Donovan t. 11.*

*Length 8 inches: size of a starling.*

*Bill black: iris reddish: lores black: front reddish: chin black, edged with white above: middle of the back and shoulders dusky: wing-coverts tip with white: quills black, 3 first tip with white, 6 next edged with yellow on the outer edge, and with white on the inner; 6 or 8 of the secondaries with the shafts ending in flat membranous fine red appendages: rump and vent grey: tail black, whitish at the end, tip with yellow, the under-coverts chestnut: legs blackish.*

## 18. LOXIA. Grosbeak.

70. *L. curvirostra*. Mandibles crossing each other: body variegated with orange, yellow and green: wings and forked tail dusky.



Cross-bill. *Br. Zool. t. 49. Lewin t. 67. Donovan t. 39.*

*Length 7 inches: extent 13 inches: weight near 2 ounces.*

*Bill dusky, the mandibles hooked and crossing each other: iris dusky: head and neck variable red orange and yellowish: back and wing-coverts more or less olive-green, with dusky marks: rump orange: vent whitish: under tail-coverts with dusky spots: legs dusky: claws black.*

*Female dull olive-green where the male is red: wings and tail dull brown: belly palish-green.*

71. *L. falcirostra.* Mandibles crossing each other: body crimson, with a whitish mixture: wings black, with 2 white bands; the secondary feathers tipped with white: tail black.

*White-winged Crossbill. Dixon Voy. t. p. 356.*

*Shot near Belfast, in Jan. 1802. Linn. Trans. 7. p. 309.*

*Length 5 inches 3 quarters: size of a goldfinch.*

*Bill dusky, with a streak of brown from the base to the eye: plumage white, with broad crimson margins, having the appearance of an undulate mixture of both colours: rump pale crimson: vent dirty white: wings with an oblique white band from the shoulders, and a second short one below: secondary quill-feathers tipped with white: legs brown. Female brown above, beneath and vent yellowish: chin pale.*

72. *L. Coccythraustes.* Chestnut brown, beneath purplish-grey: chin black: wings with a white stripe: the middle-feathers rhombic at the points: tail-feathers black at the base on the thinner side.

*Haw finch. Lewin iii. t. 66. Donovan t. 43. Walcot t. 206.*

*Length 7 inches: extent 13: weight near 2 ounces.*

*Bill very strong and thick, pale dull pink: iris grey: orbits black: sides and back of the neck grey: rump pale chestnut: middle quill-feathers truncate, angular, curled at the edges, dark blue: greater-ones black, marked with white on the inner-webs: lesser wing-coverts white: tail short, black, tipped with white on the inner-webs: legs red-brown: claws black.*

73. *L. Enucleator.* Crimson, with black spots on the back and shoulders: belly and vent cinereous: wings black, with 2 white stripes: tail blackish, with a whitish margin.

*Pine Grosbeak. Br. Zool. t. 49. Lewin t. 68. Donovan t. 17.*

*Length above 7 inches: weight more than 2 ounces.*

*Bill dusky: iris hazel: head, neck, breast and rump crimson: feathers of the back and lesser wing-coverts black with a reddish border: quills dusky, with a dirty-white outer edge: tail a little forked: legs short, dusky. Female greenish-brown, with here and there a reddish or yellowish tinge.*

74. *L. chloris.* Yellowish-green; outer quill-feathers bright yellow on the outer-webs: tail dusky, the outer-feathers yellow on the outer-webs.

*Green finch, Lewin t. 70. Albin i. t. 58. Walcot t. 208.*

*Bill pale horn-colour: iris hazel: sides of the neck inclining to grey: belly greenish-white: wing-coverts grey: rump yellowish: legs flesh-colour. Female dusky-green.*

75. *L. Pyrrhula.* Crown, front and chin, wings and tail black: neck and back grey: wing-coverts with a white line: rump and vent white: breast and belly of the male red, of the female rusty-brown.



Bulfinch. *Lewin t. 69. Albin t. 59. 6. Walcot. t. 209.*

Hardly 6 inches long. *Bill* black: *iris* dusky: *orbits* black: *wing-coverts* tipped with white, forming a line above the quills.

*Female* dirty brown: crown black: rump white.

### 19. EMBERIZA. *Bunting.*

76. *E. Nivalis*. White: front pale chesnut: back black, with pale chesnut spots: outer webs of the primary quill-feathers, and middle tail-feathers black.

Snow Bunting. *Br. Zool. t. 50. Lewin t. 81. Walcot. t. 211.*

*Weight* about an ounce and a quarter: size of the chaffinch.

*Bill* yellowish, tipped with black: *iris* brown: *orbits* yellowish: front pale chesnut: body above with oblong blackish spots: rump and beneath white: greater quills black, white at the base; secondaries white, with a black spot on the inner-webs: outer tail-feathers white, with a dusky spot near the end: legs blackish.

*Female* dull chesnut: brown above, paler underneath.

2. Head, neck, cheeks and back tawny, with black spots: breast pale chesnut: lesser wing-coverts brown with white tips: greater white with black tips: quills dull black.

Tawny Bunting. *Lewin t. 81. Donovan t. 27. Walcot. t. 211.*

3. Neck and back grey with black spots: throat white: breast and belly with flame-colour waves: at the setting on of the wings grey: 5 first feathers blackish-brown, the rest white with a little brown at the point: 3 outer tail-feathers white, the rest dark-brown.

Mounting Bunting. *Mort. North. t. 13. f. 1. Walcot. t. 210.*

*Obs.* These 2 varieties have been considered as distinct species; but till future observations shall clearly establish them as such, we must with Dr. Latham, consider 2 as the young male bird, and 3 a very old bird of *E. Nivalis*.

77. *E. citrinella*. Crown, throat and belly yellow: tail-feathers blackish, the 2 outer-ones with an acute white spot on the inner side.

Yellow hammer. *Br. Zool. t. 50. Lewin. t. 84. Donovan. t. 119.*

*Length* 6 inches: *extent* 10 inches: *weight* 7 drachms.

*Bill* bluish: *iris* hazel: back part and sides of the head tinged with green: back and shoulders yellow-brown, with dark-brown spots: rump dull orange: wing-coverts chesnut, with black spots: quills dusky, the primaries edged with greenish-yellow on the outer-webs, secondaries with rusty-brown: tail a little forked, dusky with a greenish-yellow edge: legs pale brown. *Female* dull brown.

2. Head and neck olive-green: breast brown: belly pale greenish-brown: tail dusky.

Green-headed Bunting. *Lewin. t. 84. Brown. ill. t. 30.*

78. *E. Cirlus*. Above varied, beneath yellow, spotted on the breast: over the eyes a yellow stripe: 2 outer tail-feathers with a white wedge-shaped spot.

Girl Bunting. *Montague Ornith. Dict. i. tab. frontisp.*

*Length* 6 inches and a half: *weight* about 7 drachms:

*Bill* bluish, pale beneath: *iris* hazel: crown, nape, and upper-part of the breast olive-green, the first with dusky streaks: across the eye a dusky streak, with a yellow one above and beneath it: throat black, with a bright-yellow band below: back and scapulars chesnut, the first with dusky streaks: rump olive-brown: lesser wing-coverts olive-green, greater dusky with their outer webs chesnut: greater quills dusky, edged with green on the outer-webs; lesser chesnut, dusky down the middle: breast chesnut mixed with yellow: 2 middle tail-feathers chesnut, the rest black, the 2 outer-ones with an oblique white bar, the outmost white on the outer-web: legs brown.

*Female* beneath with blackish spots: chin and vent whitish.

79. *E. miliaria*. Pale olive-brown with blackish spots, beneath yellowish-white with oblong dusky spots: orbits rufous-brown.

Common Bunting. *Lewin t. 83. Donovan t. 50. Walcot t. 213.*

*Length* 7 inches and a half: *extent* 11 and a half: *weight* nearly 2 ounces. *Bill* brown: *iris* dark hazel: *belly* dirty-white, without spots: *quill-feathers* dusky, with paler edges: *tail* a little forked, dusky, the outer-feathers pale: *legs* dull yellow.

80. *E. Schoeniclus*. Head and throat black: back and wings reddish-brown with black spots: underneath whitish: 2 outer tail-feathers with a white wedge-shaped spot.

Reed Bunting. *Lewin t. 82. Walcot t. 214. Albin ii. t. 51.*

*Length* 6 inches: *weight* nearly 5 drachms and a half.

*Bill* dusky: *iris* hazel: from the corners of the mouth a white stripe encircling the head: *breast* and *belly* whitish, the sides darker, with a few brown lines: feathers of the *back* blackish, with broad reddish-brown borders: *shoulders* chestnut: *quill-feathers* dusky, with tawny borders: *tail* blackish, 2 middle-feathers with broad rufous borders, the others tawny on the outer-webs, 2 outer-ones with a white oblique spot towards the ends: *legs* reddish-brown.

*Female* head rufous with dusky streaks, without the white circle round the nape, and brownish beneath.

## 20. FRINGILLA. Finch.

81. *F. domestica*. Body black and grey, a white mark behind the eyes: wings and tail brown, the former with a single white band.

House Sparrow. *Br. Zool. t. 51. Lewin t. 71. Donovan t. 88.*

*Length* about 6 inches: *weight* nearly 7 drachms.

*Bill* dusky: *iris* hazel: *crown* and *cheeks* grey: round the eyes and from them to the bill black: *throat* black: *nape* and *neck* chestnut: *back* and *wing-coverts* mixed rufous and black; lesser coverts tipped with white forming a band across the wings: *belly* grey: *tail* dusky, edged with grey: *legs* brown. *Female* dull brown, with a white line above the eye, without the black near the eye and on the throat. Is sometimes found entirely white.

82. *F. montana*. Body black and grey: head and nape chestnut: wings and tail brown, the former with a double white band.

Tree Sparrow. *Br. Zool. t. 52. Lewin t. 72. Donovan t. 88.*

Less than the last. *Bill* dusky: *iris* hazel: *chin* black: behind the eyes a black spot: *cheeks* and sides of the head white: *back* and *shoulders* rufous-brown, with black spots: *wing-coverts* rufous, edged with black: *quills* blackish with rufous borders: *breast* and *belly* dull white: *tail* dusky rufous, edged with chestnut: *legs* pale-red brown. *Female* without the black on the chin and sides of the head.

83. *F. cœlebs*. Wings and tail blackish: quill-feathers marked with white on both webs at the base: outermost tail-feathers obliquely marked with white.

Chaffinch. *Lewin t. 73. Albin i. t. 63. Walcot t. 217.*

Less than the Sparrow. *Bill* bluish, tipped with black: *iris* hazel: *front* black: *crown*, *nape* and sides of the *neck* bluish-grey: *chin*, *throat* and *breast* dull orange: *back* dull chestnut: *shoulders* white: secondary *wing-coverts* tipped with white: *quills* dusky, with a greenish yellow edge on the outer-webs: middle *tail-feathers* edged and tipped with grey: *rump* greenish: *belly* dirty white: *legs* brownish.

*Female* without the grey on the head and neck, and the throat and breast dirty white.

84. *F. Montifringilla*. Black with rufous and grey spots: belly and rump white: throat, breast and shoulders pale rufous: lateral tail-feathers blackish, edged with white on the outer webs.

Mountain Finch, Brambling. *Lewin t. 74. Walcot t. 218.*

*Length* about 6 inches: rather larger than the Chaffinch.

*Bill* yellowish, tip with black: *iris* dusky: *head, nape, throat* and *back* black, the feathers more or less with an orange-buff edge: lesser *wing-coverts* pale rufous, greater-ones black with orange tips: *quills* black, edged with yellow on the outer-webs, the first 3 or 4 with a white mark on the outer-webs, forming an oblique white bar: *belly* and *rump* whitish: *sides* with a few black spots: *tail* black, the 2 middle-feathers with a grey edge and tip: *legs* brownish. *Female* grey on the head and nape, with 2 dusky lines from the latter: plumage dusky with pale yellow edges, and without the orange or yellow.

85. *F. Carduelis*. Crown black: front and chin orange: quill-feathers rich yellow on the outer webs, except the outermost: 2 outer tail-feathers white in the middle, the middle-ones tip with white.

Goldfinch, Thistlefinch. *Lewin t. 75. Donovan t. 103.*

*Length* 5 inches and a half: *extent* of wings 9 inches.

*Bill* white, tip with black: *iris* dusky: from the bill to the eyes a black stripe: *cheeks* white, bounded by a black line reaching halfway round the neck: *back* brown: *breast* whitish in the middle: *sides*, lower part of the breast and belly pale brown: *vent* white: greater *wing-coverts* black, with pale tawny tips: lesser-ones tip with yellow: *quills* blackish, tip with white: *tail* black, more or less marked with white: *legs* pale brown. *Female* with the feathers at the end of the bill brown, and the black and yellow paler.

*Young bird* with the crown grey, and without the scarlet front and chin.

86. *F. Spinus*. Greenish-yellow, with dusky spots: quill-feathers yellow in the middle, the first 4 immaculate: tail-feathers yellow at the base, tip with black.

Siskin, Aberdevine. *Br. Zool. t. 53. Lewin t. 76.*

*Length* 4 inches 3 quarters: size of the linnet.

*Bill* white, tip with black: *crown* black: *rump* yellowish: *shoulders* with a broad yellow band: *throat, breast* and *cheeks* greenish-yellow: *belly* whitish, with a few black marks: *quills* blackish, the outer edges yellow: 2 middle *tail-feathers* black, the rest rich yellow on the upper half and tip with black: *legs* blackish.

*Female*, head and back greenish-grey with brown marks: throat and sides whitish.

87. *F. Linota*. Chesnut-brown, beneath yellowish-brown: wings with a longitudinal white band: tail-feathers dusky with white edges.

Linnet. *Lewin. t. 77. Albin t. p. 31. Walcot t. 221.*

*Length* 6 inches: *extent* of wings about 10 inches.

*Bill* dusky: *iris* hazel: *front* dusky, with a few dull red spots: *head* and *cheeks* grey with paler lines: *back* dark chesnut, with dusky spots: *throat* and *belly* yellowish-white: *breast* more or less blood red: *vent* white: outer-webs of the *quills* white nearly their whole length: 2 middle *tail-feathers* bordered with dull red: *legs* dark-brown. *Female* and young bird without the red on the breast, which is marked with brown lines. Is probably only a variety of the next.

88. *F. cannabina*. Chesnut brown, beneath rufous-white: front and breast more or less red: wings with a longitudinal white band: tail-feathers dusky, edged with white.

Greater Redpole. *Br. Zool. t. 54. Lewin t. 78. Walcot t. 222.*

*Length 6 inches: extent nearly 10: weight 5 drachms.*

*Bill bluish: iris hazel: head and neck grey; front and breast with rosy spots: belly pale rufous: vent whitish: quills more or less white on the outer-webs: 4 middle tail-feathers dark brown: legs brown. Female and young bird without the red on the front and breast.*

89. *F. linaria*. Above rufous-brown with dusky spots: chin black: front and breast red: wings with a double white band.

Lesser Redpole. *Br. Zool. t. 54. Lewin t. 79. Donovan t. 114.*

*Length 5 inches: extent 7 and-a-half: weight 2 drachms and a half.*

*Bill dull yellow: iris hazel: throat and belly whitish: sides with brown lines: wing-coverts dusky tipped with white, forming 2 bars on the wings: quill and tail-feathers edged with dull white: legs dusky. Female saffron on the front, and without the red on the breast.*

90. *F. Montium*. Above rufous with dusky marks, beneath whitish: feathers of the lower part of the neck black in the middle: wings with a whitish band: rump red.

Twite. *Br. Zool. t. 53. Lewin t. 80. Walcot. t. 216.*

*Length nearly 6 inches: rather larger than the linnet.*

*Bill yellowish, with a dusky tip: iris hazel: crown and rump red: feathers of the upper-parts dusky, edged with rufous: throat pale rufous with blackish spots: eyes with a pale brown spot above and below: lesser wing-coverts with a dull white edge: quills and tail-feathers with dull white outer-webs: legs blackish.*

*Female dull brown, without the red on the rump.*

## 21. MUSCICAPA. Flycatcher.

91. *M. Grisola*. Above grey-brown, with dusky spots on the head; beneath dull white, with dusky spots on the breast and sides: rump inclining to rufous.

Spotted Flycatcher. *Lewin t. 93. Walcot. t. 224.*

*Length not quite 6 inches: size of a titlark.*

*Bill dusky, broad at the base, carinate down the middle: iris hazel: mouth yellow within: sides under the wings with a dull rufous tinge: wing-coverts and tail-feathers dusky, with paler edges: legs black. Male with a whitish ring round the neck.*

92. *M. atricapilla*. Above black, beneath white: front and large patch on the wings white: outermost tail-feathers white on the outer-webs.

Pied Flycatcher. *Lewin t. 94. Donovan t. 22. Walcot. t. 225.*

*Length nearly 5 inches: size of the Linnet.*

*Bill black: iris hazel: cheeks black: wings dusky: upper tail-coverts mixed black and white: legs black: Female dusky-brown where the male is black, and the white more obscure and hardly visible on the front.*

## 22. ALAUDA. Lark.

93. *A. arvensis*. Rufous-brown spotted with black: chin, belly, and vent yellowish-white: 2 outer tail-feathers white down their outer-webs, the middle-ones with light rufous margins.



Sky-lark *Lewin t. 86. Albin t. 41. Walcot. t. 189.*

*Length* above 7 inches : *extent* nearly 13 : *weight* an oz. and a half.  
*Bill* dusky, the base of the lower mandible yellowish : *iris* hazel :  
*head* brown, with roundish black spots : *neck* and *shoulders* greyish-  
 brown : *coverts* and *wings* reddish-brown, with paler margins :  
*throat* and *breast* pale yellowish-brown, with dark streaks : 2 outer  
*tail-feathers* edged with white : *legs* pale brown : *hind-claw* very  
 long, and nearly straight.

94. *A. arborea*. Ferruginous, with oblong blackish spots :  
 from the bill over the eyes and surrounding the nape  
 a yellowish white band : quills and tail-feathers  
 blackish.

Wood Lark. *Lewin t. 88. Albin t. 42. Walcott t. 190.*

*Length* 6 inches : *extent* 13 inches ; *weight* 8 drachms.  
*Bill* dusky, yellowish at the base of the lower mandible : *iris* dark  
 hazel : *crown* and *back* dark rufous, with oblong black spots : under  
 the *ears* a blackish patch : *shoulders* grey-brown : *wing-coverts* dark-  
 brown, with yellow-brown margins : *throat* and *breast* pale rufous,  
 with oblong dusky spots : *belly* and *vent* dirty white : *tail* very  
 short, the 4 outer-feathers blackish : *legs* yellowish : *hind-claw*  
 long, nearly straight.

95. *A. pratensis*. Above green brown, with dusky marks ;  
 throat, belly and vent white : 2 outmost tail-feathers  
 white on the outer-webs : over the eyes a palish  
 streak.

Tit Lark. *Lewin t. 91. Albin t. 43. Walcot t. 191.*

*Length* 5 inches and a half : *extent* 9 : *weight* nearly 5 drachms.  
*Bill* dusky, yellowish at the base of the lower-mandible, with a  
 pale line from its base extending over the eye : sides of the *neck*  
 and *breast* dirty yellowish-white, with oblong dusky spots : *quills*  
 and *coverts* dusky-brown, with paler margins : *tail* blackish, the  
 outer-feathers white down the outer-edge, and on the inner edge  
 half way, the secondaries with a spot of white on the tip : *legs* yel-  
 lowish-brown : *hind-claw* hardly longer than the rest.

96. *A. trivialis*. Above dull olive-brown with dusky  
 spots, beneath pale ferruginous with dusky spots :  
 outermost tail-feathers white for more than half their  
 length, the secondaries at the tip.

Pipit Lark. *Albin t. 44. Walcot t. 194.*

*Length* 6 inches and a half : *weight* about 5 drachms and a half.  
*Bill* dusky, the sides and base of the upper mandible dull yellow :  
*iris* hazel : sides of the *neck*, *breast* and *sides* with oblong dusky  
 spots : *coverts* and *quills* dusky with olive margins : 2 middle *tail*-  
*feathers* dusky, with paler margins, the rest except the outer-ones  
 with a greenish-brown edge : *legs* dull yellow : *hind-claw* a little  
 curved.

97. *A. Obscura*. Olive-brown, with blackish marks ; be-  
 neath dirty yellow : throat, breast, and sides of the  
 neck with oblong brownish spots : outmost tail-  
 feathers greyish-white half their length, the secon-  
 daries at the tip.

Grafshopper Lark. *Lewin t. 90. Donovan t. 76.*

*Length* nearly 7 inches : *weight* about 7 drachms.  
*Bill* thin, long, brown with a deeper tip : *iris* hazel : above the *eye*  
 and beneath the *ear* a pale stroke : sides of the *neck*, *throat* and *breast*  
 yellow olive with oblong brown spots : *wing-coverts* and *quills*  
 dusky olive with pale edges : *belly* and *vent* dirty white : 2 middle  
*tail-feathers* dark brown : *legs* dusky : *hind-claw* long, curved,



98. *A. minor*. Yellow-brown with dusky spots : throat and breast ochre-yellow with brown spots : chin and belly yellowish white.

Field Lark. *Lewin t. 92. Walcot t. 192.*

*Length* 6 inches and a half : *weight* nearly 6 drachms.

*Bill* dusky, beneath whitish : *iris* hazel : *wing-coverts* tipped with dirty white : *rump* not spotted : *outmost tail-feathers* half white. *secondaries* tipped with white : *legs* yellow brown : *hind-claw* short, curved.

99. *A. rubra*. Rufous-brown with dusky spots : sides of the neck and breast ferruginous with dusky spots : cheeks dusky : over the eye a pale rufous streak.

Red Lark. *Lewin t. 89. Edwards t. 297.*

Size of the Sky Lark. *Bill* whitish beneath at the base : *iris* hazel : *chin* and *throat* pale ferruginous : from the bill across the eyes a dusky streak : *wings* with 2 small whitish lines across them : greater *quills* dusky with a yellow-white edge, the rest with a rufous margin : *belly* and *vent* dirty white : middle *tail-feathers* blackish with rufous margins, outer-ones white, *secondaries* white on the outer-web and tip, the rest dusky : *legs* reddish-brown : *hind-claw* as long as the toe, a little curved.

100. *A. cristata*. Head crested : pale chesnut, with dusky spots : belly and vent dirty white, unspotted : tail-feathers blackish, the 2 outmost white on the outer margins.

Greater crested Lark. *Lewin t. 85. Albin t. 52.*

*Length* 6 inches and 3 quarters : larger than the Skylark.

*Bill* dusky above, yellowish beneath : *iris* hazel : *crest* composed of 7-12 feathers nearly half an inch in length : *neck* and *shoulders* grey-chestnut : *wing-coverts* brownish-black, with a chestnut edge : *throat* and *breast* pale yellow, with a few black spots : *tail* about 2 inches long : *legs* brown : *hind-claw* long.

101. *A. cristatella*. Head crested : above brown with blackish spots ; beneath pale ferruginous : over the eyes a pale line : quill and tail-feathers brown : legs reddish.

Lesser crested Lark. *Lewin t. 87. Pl. enlum. 503. f. 2.*

Less than the last. *Bill* dark horn-colour : *iris* hazel : *crest* longer : *wing-coverts* rich-brown with buff edges : *throat* and *breast* pale brown, with oblong blackish spots : *belly* and *vent* dull white : *tail* short, the outer-feathers edged with white : *legs* and *toes* short, slender : *hind-claw* long, slightly curved.

### 23. MOTACILLA. Wagtail.

102. *M. alba*. Chin, lower part of the neck and breast black : 2 outer tail-feathers obliquely white for more than half their length.

White Wagtail. *Br. Zool. t. 55. Lewin t. 95. Donovan t. 5.*

*Length* 7 inches and a half : *weight* nearly 6 drachms.

*Bill* black : *iris* dusky : *front*, *cheeks*, and sides of the *neck* white : *crown* and upper and under sides of the *neck* black : *back* greyish-black : *belly* and *vent* white : greater *wing-coverts* black, tipped with white : *quills* dusky, the inner-ones bordered with white on the outer-webs : *tail* black, except the outer-feathers : *legs* black.

*Female* dusky where the male is black, and more grey above. In the autumn there is only a black crescent-like mark on the breast.

103. *M. Boarula*. Above dark grey, beneath buff yellow : vent and rump pale yellow : outmost tail-feathers entirely white, secondaries on the inner-webs.

Grey Wagtail. *Lewin t. 96. Donovan t. 40.*

*Length* near 8 inches : *extent* 10 : *weight* about 5 drachms.

*Bill* brown : *iris* dark hazel : *cheeks* dark grey : *chin* and *throat* buff in the winter becoming black in the summer : *rump* and *vent* rich yellow : *wing-coverts* and *quills* blackish, with pale margins : middle *tail-feathers* dusky, with a yellow edge towards the base : *legs* pale brown.

104. *M. flava*. Above pale olive-green, beneath rich yellow : across the eyes an olive-green stripe : 2 outer tail-feathers obliquely white for more than half their length.

Yellow Wagtail. *Br. Zool. t. 55. Lewin t. 97. Donovan t. 15.*

*Length* near 7 inches : *extent* 10 : *weight* about 5 drachms.

*Bill* black : *iris* hazel : over the eyes a yellow streak : *throat*, in the summer, with black spots : *quill-feathers* dusky, with paler edges : 2 outer *tail-feathers* obliquely black and white, the rest dusky : *legs* blackish. *Female* less bright in the colours.

#### 24. SYLVIA. Warbler.

105. *S. Luscinia*. Above reddish-brown, beneath pale yellowish-ash : tail deep tawny-red.

Nightingale. *Lewin iii. t. 99. Donovan t. 108. Walcot t. 229.*

*Length* 7 inches : *extent* 10 inches : *weight* 6 drachms.

*Bill* dusky : *iris* hazel : *quills* and *coverts* reddish-brown, with paler margins : *vent* whitish : *knees* grey : *legs* long, light brown.

106. *S. hortensis*. Above light olive-brown, beneath dirty-white : from the bill over the eyes a whitish streak : tail-feathers brown with a grey brown outer margin, the outmost obliquely half white.

Greater Pettichaps. *Lewin t. 101. Walcot. t. 230.*

*Length* 6 inches : *extent* 9 inches : *weight* 5 drachms.

*Bill* dusky, the base of the lower mandible yellowish : *iris* hazel : *mouth* red or yellow within : *head* darker than the back : *quills* dark-brown with paler margins : *belly* and *vent* white : *legs* lead-colour.

107. *S. Hippolais*. Above greenish-brown : throat and breast dirty yellowish white : breast and belly silvery white : above and below the eyes a yellowish streak : quill and tail-feathers dusky, with a dirty yellow margin.

Lesser Pettichaps. *Lewin t. 102. Donov. t. 14.*

*Length* 5 inches : *extent* nearly 6 inches : *weight* near 3 drachms.

*Bill* dusky : *iris* hazel : *chin* whitish : lower *wing-coverts* yellowish : *legs* dusky

2. *Paler* above : *thighs* brown : *tail* brown : *eyebrows* white.

108. *S. sylvicola*. Yellow-green : throat and cheeks yellow : belly and vent pure white : from the bill over the eye a bright brimstone streak.

Wood Wren. *Linn. Trans. 11. p. 245. tab. 24.*

*Length* 5 inches and a quarter : *weight* near 3 drachms.

*Bill* dusky : *iris* hazel : through the eyes a bright sulphur streak, but not under them as in the last : upper-part of the breast yellowish-white : *quill-feathers* dusky, edged on the outer-webs with yellow-green : *tail-feathers* dusky, edged with green on the outer-webs except the first, and with white on the inner : *legs* horn-colour.

109. *S. atricapilla*. Crown black, of the female chesnut : body above grey greenish-brown, of the female inclining to olive : beneath cinereous.

Black-cap. *Lewin t. 100. Walcot t. 234.*

*Length 6 inches: extent 10 inches: weight half an ounce.*

*Bill brown: iris dark hazel: cheeks and neck greyish-brown: chin whitish: quill and tail-feathers dusky, with a greenish-brown margin: belly and vent whitish: legs lead-colour.*

110. *S. arundinacea.* Above olive-brown, beneath yellowish-white: lores and orbits whitish-brown: wings with a tawny-yellow band in the middle underneath: tail brown, somewhat wedge-form.

*Reed Wren. Lewin t. 113. Gent. Mag. Vol. 55. t. p. 640.*

*Length hardly 5 inches and a half: weight 3 drachms.*

*Bill dusky above, yellowish beneath, broad at the base: iris hazel: sides inclining to rufous-brown: from the bill to the eye a lightish streak: quill and tail-feathers dusky, with olive-brown margins: legs dusky: soles greenish-yellow.*

111. *S. modularis.* Above grey-brown, with dusky spots: wing-coverts greyish at the tips: throat and breast bluish-grey.

*Hedge Sparrow. Lewin t. 103. Albin 1. t. 39. Walcot t. 232.*

*Length 5 inches and a half: extent near 9: weight 6 drachms.*

*Bill dusky: iris hazel: chin and sides of the neck greyish: quill and tail-feathers dusky, with dull rufous margins: belly dirty white: legs dull flesh-colour.*

112. *S. Phœnicurus.* Front white: chin and throat black: head and back bluish-grey: breast, rump, and tail rufous.

*Redstart. Lewin t. 104. Donovan t. 82. Walcot t. 233.*

*Length 6 inches: extent 9 and a half: weight near 4 drachms.*

*Bill black: iris dark hazel: cheeks black: sides rufous: quills brown with pale edges: vent whitish: 2 middle tail-feathers brown, with a rufous margin: legs blackish. Female, chin whitish, and the rufous colour less bright.*

113. *S. cinerea. var.* Above brown-grey, with a rufous shade; beneath white, with a reddish tinge: outmost tail-feathers entirely white on the outer-web, and half way down the inner.

*White-throat. Lewin t. 105. Albin t. 58. Walcot t. 235.*

*Length near 6 inches: extent near 9: weight about 4 drachms.*

*Bill dusky, whitish beneath: iris hazel: wing-coverts dark-brown, with a dull rufous margin: quills dusky, edged with grey-brown: throat white: breast and belly with often a rosy tinge: tail dusky: legs pale brown.*

114. *S. Sylviella.* Head and rump grey: back, wings and tail grey-brown: beneath dirty white: 2 middle tail-feathers shorter and subulate.

*Lesser White-throat. Lewin t. 106. Donovan t. 86.*

*Length 5 inches and a quarter: weight 3 drachms and a quarter.*

*Bill dusky: iris yellowish: quill and tail-feathers darker than the back, with a grey edge: the outer-feather of the latter white on the outer-web, and more than half of the inner: from the chin to the vent pure white: legs brown lead-colour.*

115. *S. Locustella.* Olive-brown with dusky spots; beneath yellowish-white, darker on the breast; tail wedge-shaped, with pointed feathers.

*Grasshopper Warbler. Lewin t. 98. Br. Zool. fol. t. Q. f. 5.*

*Length 5 inches and a half: weight 3 drachms and a quarter.*

*Bill dusky above, pale beneath: iris hazel: from the bill to the eyes a yellowish streak: breast and sides inclining to brown, with a*

few dark streaks: *quills* and *tail* dusky olive-brown with paler outer margins: *legs* pale brown.

116. *S. salicaria*. Yellowish-brown with dusky spots, beneath dirty white: tail-coverts pale tawny: over the eye a white stripe.

Sedge Warbler. *Lewin* t. 107. *Donov.* t. 48.  
*Bill* black, pale beneath: *cheeks* pale brown: over the *eyebrows* a black stripe: *breast* and *sides* darker: *quills* and *tail* dusky, the former edged with olive-brown: *tail* a little wedge-form: *legs* dusky.

117. *S. Dartfordiensis*. Deep rufous-brown, beneath ferruginous: belly white in the middle: iris and eyelids red: legs yellow.

Dartford Warbler. *Lewin* t. 108. *Br. Zool.* t. 56. *Donovan.* t. 10.  
*Bill* black, whitish at the base of the upper mandible: *throat* with a few whitish spots: *cheeks* dark grey: *quills* dusky, edged with dark grey: *spurious wing* white: *tail* wedge-form, brown, the outmost feathers white on the outer edge.

118. *S. rubecula*. Greyish-brown, belly white: front, chin throat and breast deep orange.

Red-breast. *Lewin* t. 109. *Donovan* t. 123. *Walcot.* t. 238.  
*Length* 6 inches: *extent* of wings 9 inches.  
*Bill* black: *iris* dark hazel: *body* above brownish-ash, with a tinge of green: *wings* darker, with paler margins: *legs* dusky.

119. *S. rubicola*. Deep tawny spotted with black, beneath dull rufous: throat black: sides of the neck and spot on the wings white.

Stone chat. *Lewin* t. 110. *Donovan* t. 92. *Walcot.* t. 239.  
*Length* 5 inches and a half: *extent* near 9: *weight* half an ounce.  
*Bill* black: *iris* dusky: *head* and *throat*, of the male black: each side the *neck* a broad band of white: *quill* and *tail-feathers* dusky, with tawny edges: *rump*, of the male, white: *belly* pale rufous: *vent* whitish: *legs* black.

120. *S. Rubetra*. Dull rufous spotted with black, throat and breast ferruginous: over the eyes and from the chin down the sides of the neck a white stripe: wings with two white spots.

Whin chat. *Lewin* t. 111. *Donov.* t. 60. *Walcot.* t. 240.  
*Length* 5 inches: *extent* 9 inches: *weight* 4 drachms and a half.  
*Bill* black: *iris* hazel: *cheeks* black: *quills* dusky, with rufous margins: *tail* blackish, white on the lower part except the 2 middle feathers: *belly* and *vent* whitish, with a ferruginous tinge: *legs* black.

121. *S. Œnanthe*. Head and back bluish-grey: cheeks black: over the eyes a dirty-white stripe: breast and belly yellowish-white: rump and base of the tail white.

Wheat-eat. *Lewin* t. 112. *Albin* t. 54, 55. *Walcot.* t. 241.  
*Length* above 6 inches: *extent* near 12: *weight* near 7 drachms.  
*Bill* black: *iris* hazel: from the *bill* a black stripe, forming a black patch round the eyes: *front* dirty white: *wings* and *coverts* dusky, with reddish-brown edges: *breast* with a reddish tinge: *vent* white: 2 middle *tail-feathers* white with a black base, the rest white tipped with black: *legs* blackish.  
 2. Mixed fulvous and whitish: lower part of the neck with grey spots: 2 middle tail-feathers entirely black.

122. *S. Troglodytes*. Reddish-brown, crossed with ob-



secure dusky lines : throat and breast paler : over the eyes a pale reddish-white stripe.

Wren. *Lewin t. 115. Albin t. 53. B. Walcot t. 242.*

*Length* above 4 inches : *extent* 6 and a half : *weight* not 3 drachms. *Bill* and *legs* dusky : *iris* dark hazel : *cheeks* marked with dirty white mixed with ferruginous : *quill-feathers* with black and reddish white undulate lines : *tail* crossed with dusky lines.

123. *S. Regulus*. Greenish, beneath dirty white : crown orange, of the female bright yellow : secondary quill-feathers yellow on the outer margin, white in the middle.

Golden-crested Wren. *Lewin t. 116. Donovan t. 4. Walcot. t. 243,*

*Length* 3 inches and a half : *extent* 5 : *weight* 76 grains.

*Bill* blackish : *iris* hazel : *crown* orange in the middle, light yellow each side, bordered with black : *hind-head* and *neck* greyish-green : *front, chin* and *cheeks* whitish : *quills* dusky edged with green, the coverts tipped with white : *tail* dusky, the feathers edged with yellowish-green : *legs* yellowish.

124. *S. Trochilus*. Greenish yellow-brown, beneath white tinged with yellow : over the eyes a yellowish stripe : wing-coverts yellow.

2. *Front, wings*, and underneath pale yellow : *back* and *tail* pale brown. *Scotch wren. Edw. t. 278. f. 2.*

Yellow Wren. *Lewin t. 114. Donovan t. 14. Hayes t. 38,*

*Length* 5 inches : *weight* above 2 drachms and a half.

*Bill* dusky above, yellowish beneath : *iris* hazel : *breast* with a few yellowish streaks : *vent* white : *quills* and *tail-feathers* dusky edged with yellow : *legs* yellow-brown.

## 25. PARUS. Titmouse.

125. *P. cristatus*. Greenish-brown, belly and vent dirty-white : head crested, black spotted with white : throat and collar black.

Crested Titmouse. *Lewin t. 117. Donovan t. 26. Albin t. 57.*

*Length* nearly 5 inches : *weight* 2 drachms and a half.

*Bill* blackish : *iris* dark hazel : *front* and *crown* white with black waved lines : *crest* pointed black, edged with white : *cheeks* white, with black marks : from the *eyes* a black stripe across the cheeks, meeting another which passes down the sides of the neck : *quill* and *tail-feathers* darker than the back, with paler edges : *legs* lead-colour.

126. *P. major*. Olive-green, beneath green-yellow with a broad black stripe down the middle : head and throat black : cheeks white : wings with a white band.

2. Olive-brown, beneath dirty yellow : head black : temples grey : mandibles crossing each other. *Lewin t. t. frontisp.*

Great Titmouse. *Lewin t. 117. Donovan t. 69.*

*Length* near 6 inches : *extent* 9 : *weight* 10 drachms.

*Bill* black : *iris* hazel : *nape* yellowish : *rump* bluish-grey : *quill-feathers* dusky : *coverts* bluish, the larger tipped with white : *tail-feathers* dusky, all bluish on their outer-webs, except the outmost which are white : *vent* white : *legs* lead-colour.

127. *P. ater*. Bluish-grey, beneath yellowish white : head and throat glossy black : cheeks and patch on the hind-head white : wings with 2 white bars.

Coal Titmouse. *Br. Zool. t. 57. Lewin t. 119. Walcot. t. 79.*

*Length* 4 inches : *extent* 7 : *weight* above 2 drachms.

*Bill* black : *iris* hazel : *rump* greenish : lower part of the belly and

vent white; sides yellowish; greater and lesser wing-coverts tipped with white; quills dusky with paler outer margins; legs lead-colour.

128. *P. palustris*. Rusty-grey, beneath dirty white: head and chin black: cheeks, sides of the neck and throat white.

Marsh Titmouse. *Br. Zool. t. 57. Lewin t. 120. Walcot t. 247.*

Length 4 inches and a half: extent near 8: weight 2 dr. and a half. Bill black: iris hazel: head black, but not glossy: chin often spotted with white: wings with or without a grey band or two: quill and tail-feathers dusky-grey with paler outer margins: legs lead-colour.

129. *P. cæruleus*. Crown, wings and tail blue: front and cheeks white: across the eyes and on the sides of the neck a black stripe: back yellowish-green: breast and belly yellow.

Tom-tit. *Brit. Zool. t. 57. Lewin t. 121. Walcot t. 245.*

Length 4 inches and a half: extent above 7: weight 3 drachms.

Bill blackish; iris dark hazel: crown bounded by a circle of white: wings with a white bar; the primary quills white on the outer-margin: legs lead-colour.

130. *P. caudatus*. Purplish, with a broad black band down the back, beneath pale rosy: crown white, surrounded by a black band passing through the eyes: tail longer than the body.

Long-tailed Titmouse. *Lewin t. 122. Donovan t. 16.*

Length near 6 inches: extent near 7: weight about 2 drachms.

Bill short, thick, black: iris hazel, edges of the eye-lids yellow: head and cheeks white, with a few dark feathers: sides of the back dull purple: throat and under part of the neck white: greater wing-coverts brown, with a dull rosy edge, tipped with white: quills dusky, the inner-ones white on the outer edge: tail 3 inches long, the feathers very unequal in length, the 4 middle-ones black, the next with a white mark near the tip, the rest obliquely white on the outer-webs: legs blackish.

131. *P. biarmicus*. Rufous, chin and throat white: head hoary: beneath the eyes a tuft of black feathers pointing downwards: vent black: tail as long as the body.

Bearded Titmouse. *Lewin t. 123. Donovan t. 1. Walcot t. 248.*

Length 6 inches and a quarter: weight 2 drachms and a half.

Bill orange, a little curved: iris yellow: breast flesh-colour: quills dusky with pale edges, the inner-webs of the primaries white: secondaries with rufous edges: tail wedge-form, 3 inches long, the outer feathers more or less white: legs black. Female without the black tuft under the eyes: vent white.

## 26. *HIRUNDO*, Swallow.

132. *H. rustica*. With 3 toes forwards: above black with a purplish gloss, beneath whitish: front and chin ferruginous: tail-feathers, except the 2 middle ones, with an oval white spot.

Chimney Swallow. *Br. Zool. t. 58. Lewin t. 124. Walcot t. 251.*

Length near 7 inches: extent above 12: weight near 6 drachms.

Bill black: iris hazel: breast and belly white, in the male with a tinge of red: tail much forked: legs dusky.

133. *H. urbica*. With 3 toes forwards: rump and underneath white: tail-feathers entirely black.

House Martin. *Lewin t. 125. Albin t. 56. a. Walcott t. 252.*

Length 5 inches and a half: extent 10: weight about 5 drachms.

Bill black: mouth yellow within: iris hazel: tail much less forked than in the swallow: legs covered with short white down: claws white.

134. *H. riparia*. With 3 toes forward: mouse-brown, beneath white: a broad mouse-brown band across the throat.

Sand Martin. *Lewin t. 126. Albin t. 56. b. Walcott t. 253.*

Length hardly 5 inches: extent about 10 inches.

Bill dusky: iris hazel: tail with a slight cinereous edge: legs dusky, a little feathered behind.

135. *H. Apus*. With the toes all placed forwards: above and underneath sooty-black: chin whitish.

Swift. *Br. Zool. t. 58. Lewin t. 127. Walcott t. 254.*

Length near 8 inches: extent above 17: weight an ounce.

Bill black: iris hazel: quill and tail-feathers with dusky margins: legs very short, clothed to the toes with dusky feathers: claws black. Female less, and more inclining to brown.

## 27. CAPRIMULGUS. Goatsucker.

136. *C. europæus*. Variegated with black, brown, ferruginous and white; beneath reddish-brown, with numerous dusky transverse lines.

Night Swallow. *Br. Zool. t. 59. Lewin t. 128. Donovan t. 67.*

Length 10 inches and a half: extent 22: weight 2 ounces and a half.

Bill dusky, short, weak: eyes large: iris hazel: body elegantly variegated with black, grey, dark brown, ferruginous and white, disposed in spots lines and bars: tail rounded: legs short, scaly, feathered below the knees. Male with a large white oval spot on the inner-web of the 3 first quill-feathers, and at the end of the 2 outer tail-feathers.

## ORDER IV. COLUMBÆ.

### 28. COLUMBA. Dove, Pigeon.

137. *C. Cenas*. Pale bluish ash-colour: neck and breast with a green and copper gloss: lower part of the back whitish: wings with 2 black bands: tail tip with black.

Stock Dove. *Br. Zool. t. 45. Lewin t. 129. Donovan t. 107.*

Length near 14 inches: extent 22: weight 11 ounces.

Bill and legs red: iris bright yellow: greater quill-feathers dusky, with a whitish edge: breast inclining to clarety purple: sides whitish: belly and vent pale ash-colour: tail dark bluish-grey, with sometimes a black bar near the middle: the outer-feathers white on the outer-webs near the base.

138. *C. Palumbus*. Deep bluish ash: each side the neck a glossy-white patch: angles of the wings and outer quill-feathers edged with white: tail black at the end.

Ring Dove, Quest. *Lewin t. 130. Walcott t. 187.*

Length near 18 inches: extent 30: weight 20 ounces.

Bill yellowish: iris bright yellow: back inclining to brown: greater quills blackish, the outer-ones white on the outer edges: spurious wings nearly black, with a white line down to the quills: lower-part of the belly and vent inclining to white: tail dark ash-colour, black on the lower part: legs purplish-red, feathered below the knees.

139. *C. Turtur*. Back brownish-ash; breast reddish-white: sides of the neck with a black patch spotted with white: tail tip with white.

Turtle Dove. *Br. Zool. t. 45. Lewin t. 131. Walcot. t. 188.*

*Length* 12 inches: *extent* 21 inches: *weight* 6 ounces.

*Bill* dusky: *iris* yellow: beneath and behind the eyes purplish-red: head and neck blue-grey: back and wings reddish-brown, the feathers with paler edges; the fore-part of the latter bluish-grey: chin and belly whitish: quills dusky, with paler margins: tail black, the 2 middle-feathers not tipped with white, the outmost white on the outer edge: legs purplish-red.

## ORDER V. GALLINÆ.

### 29. PHASIANUS. Pheasant.

140. *P. colchicus*. Reddish chesnut spotted with black: head and part of the neck, of the male, blue, with a violet and green-gold gloss: tail wedge-form: cheeks warty.

Phœasant. *Lewin t. 132. Albin t. 25, 26. Walcot t. 178.*

*Length* 3 feet: *breadth* 2 feet 8: *weight* near 3 pounds.

*Bill* pale horny: *iris* yellow: cheeks crimson speckled with black, granular: *plumage* a rich assemblage of red and black, with a fine gloss of green gold blue and violet changeable in the various shades of light: feathers of the tail very unequal, the 2 middle-ones 18 or 20 inches long: legs dusky: toes connected at the base; spur 3 quarters of an inch long. *Female* brown, with a mixture of grey, reddish and black: sides of the head covered with feathers.

### 30. TETRAO. Grouse.

141. *T. Urogallus*. Rufous-brown: head and neck cinereous: chin and belly blackish: axils of the wings white.

Cock of the Woods. *Lewin t. 133. Br. Zool. t. 40, 41. Donov. t. 89.*

*Length* 2 feet 8: *extent* 3 feet 10: *weight* 12 or 13 pounds.

*Bill* horn-colour: *iris* hazel: cheeks red: body marked with minute transverse black lines: breast glossy black-green: belly and vent marked with white: tail black, with a few white spots: legs covered with brown feathers: edges of the toes pectinate.

*Female* less: throat red: head, neck and back, with tawny and red bars: belly with pale orange and black bars: tail dark ferruginous, with black bars, tipped with white.

142. *T. Tetrix*. Glossy blue-black: spot near the shoulders, 2 bars on the wings, and under tail-coverts white: tail forked. *Fem.* larger, with reddish spots on the neck, breast, wings and thighs.

Black Grouse. *Brit. Zool. t. 42. Lewin t. 134. Donov. t. 97.*

*Length* 1 foot 10: *extent* 2 feet 9: *weight* near 4 pounds.

*Bill* dusky: *iris* hazel: coverts dusky-brown: 4 first quill-feathers black, the next white at the bottom; lower half of the secondaries and under-coverts white: thighs and legs clothed with dusky feathers, with a few white spots on the former: tail much forked, the outer feathers bending outwards; the under-coverts pure white.

*Female* much less, transversely variegated with ferruginous black and grey: tail-feathers straight and even at the end.

143. *T. Lagopus*. Varied with grey and white: legs woolly: wings white, with black shafts: 2 middle



tail-feathers white, the rest black more or less tipped with white.

Star-migan. *Br. Zool. t. 43. Lewin t. 135. Donovan t. 12.*

*Length 15 inches: extent 23: weight 19 ounces.*

*Bill black: iris hazel: plumage pale brown or ash-colour, crossed with small dusky spots and bars: head and neck with broad bars of black, ferruginous, and white: belly white: wings white, the shafts of the greater quills black: tail-coverts white, reaching to the end of the tail, and concealing it when closed: legs and toes covered with white down. In winter the plumage changes to pure white, except the shafts of the wings and tail, and a black spot in the male between the bill and the eye.*

144. *T. scoticus*. Tawny-red, with transverse black lines and spots: 6 outer tail-feathers each side entirely blackish: over the eyes a naked scarlet fringed membrane.

Red Grouse. *Br. Zool. t. 43. Lewin t. 136. Walcot t. 183.*

*Length 16 inches: extent 26 inches: weight near 20 ounces.*

*Bill black: iris hazel: nostrils covered with black and ferruginous feathers; at the base of the lower mandible a white spot: head and neck pale tawny, with black lines: back and scapulars deeper tawny: breast and belly dull purplish-blown, crossed with minute dusky lines: 4 middle tail-feathers with black and red bars: legs clothed below the knees with white down.*

### 31. PERDIX. *Partridge*.

145. *P. cinerea*. Cinereous, with black, rufous, and white lines: behind the eyes a naked red skin: on the breast a deep chesnut patch: outer tail-feathers bright chesnut.

Common Partridge. *Lewin t. 137. Albin t. 27. Walcot t. 184.*

*Length 13 inches: extent 20: weight nearly 15 ounces.*

*Bill brown: iris hazel: head reddish-brown: plumage grey, crossed with black and bay lines; the feathers of the back and wing-coverts with a white line down the middle: breast with a horse-shoe-like chesnut mark: greater quills dusky, with reddish spots on each web: 6 outmost tail-feathers each side ferruginous tipped with white, the rest like the back: legs of the male with a blunt spur. Female, head duller: cheeks greyish: spot on the breast white the first year, dull chesnut the second, obsolete the third.*

146. *R. rufa*. Legs and bill red: through the eyes a white stripe: throat white, with a black collar spotted with white.

Red-legged Partridge. *Lewin t. 138. Albin t. 29.*

Not uncommon in *Norfolk* and *Suffolk*, and rather larger than the last. *Bill and iris red: front greyish: head and breast reddish: chin white: sides and lower part of the neck spotted with black: back, wings and rump grey-brown: sides with crescent-like stripes of black white and orange: quill-feathers edged with dull yellow: 6 outer tail-feathers rufous, the middle-ones grey-brown: vent pale rufous: legs, of the male, with a blunt spur.*

147. *P. Coturnix*. Variegated grey, yellow, brown and white; beneath pale reddish-white: down the crown and over the eyes a yellowish white streak: tail-feathers with a rufous margin and crescent.

Quail. *Lewin t. 139. Albin t. 30. Walcot t. 185.*

*Length 7 inches and a half: extent 14: weight*

*Bill dusky: iris hazel, becoming yellow: head ferruginous spotted with black, the crown divided by a yellow-white line: chin and*

throat dirty-white, with a black mark extending to the ears: cheeks spotted brown and white: breast pale yellow-red, with a few black lines: belly and vent paler: quills dusky, with yellowish-white marks: tail dusky, more or less tipped with white: legs yellowish, without spur in the male.

### 32. OTIS. Bustard.

148. *O. Tarda*. With undulate dusky and rufous streaks, beneath whitish: male with a crest-like tuft each side the lower mandible.

Great Bustard. *Br. Zool. t. 44. Lewin t. 140. Walcot. t. 173.*

Length near 4 feet: extent 9: weight 24-28 pounds.

Bill dusky: iris light hazel: head and neck cinereous; lower-part of the neck and throat ferruginous: greater wing-coverts grey: quills black, slightly tipped with white: middle tail-feathers ferruginous with black bars, outer-ones whitish with black bars: legs dusky.

Female half the size of the male: crown orange with black lines: lower-part of the neck before grey: lower mandible without the tufts of feathers.

149. *O. Tetrax*. Ferruginous mottled with brown and crossed with dusky lines, beneath white: lower mandible of the male without the crest-like tuft.

Little Bustard. *Lewin t. 141. Edw. t. 251. Walcot t. 174.*

Length 17 inches: about the size of the pheasant.

Bill pale brown: crown and chin spotted ferruginous and black: sides of the head rufous-white: neck, in the male, black bounded above and below with white: greater quills black with a white base; secondaries white: 4 middle tail-feathers tawny with black bars; the rest white more or less barred with black: legs grey.

Female with the neck like the back.

150. *O. Œdicnemus*. Pale reddish-brown, with dusky spots: chin, belly, and vent, white with a few dusky streaks: 2 primary quill-feathers black, with a white bar in the middle.

Thick-kneed Bustard. *Lewin t. 142. Albin t. 69. Walcot t. 163.*

Length 18 inches: extent 36: weight 18 ounces.

Bill yellowish at the base, dusky at the tip: iris yellow: head much rounded: beneath the eyes a bare yellowish-green space, with a pale streak above and beneath them: wing-coverts with a whitish band: tail-feathers tipped with black, except the 2 middle-ones; the 3 outer barred with black and white, the rest with brown: legs yellow; the knees thick, as if swollen: claws dusky.

## ORDER VI. GRALLÆ.

### 33. PLATALEA. Spoonbill.

151. *Pl. Leucorodia*. White, with a bright orange spot at the angles of the bill: hind-head crested.

White Spoonbill. *Br. Zool. app. t. 9. Lewin t. 143.*

Length 40 inches: extent 52: weight 3 pounds and a half.

Bill 7 inches long, 2 inches wide in the broadest part, brown or black, with an orange spot near the tip of the upper mandible, rough towards the base: tongue short, heart-shaped: iris grey, or red: orbits nearly bare, black: chin sometimes black: plumage white, with sometimes the tips of the quills black: legs 6 inches long, black, naked half way up the thighs.

### 34. ARDEA. Heron.

152. *A. Grus*. Body cinereous: hind-head bare of fea-

thers, warty: crown, forepart of the neck and quills black: from the pinion of the wings a tuft of loose lacerated curled feathers.

Crane. *Br. Zool. app. t. 6. Lewin. t. 144. Walcot t. 124.*

*Length 5 feet or more: weight about 10 pounds.*

*Bill 4 inches long, olive-green: front covered with black down or bristles: back of the head bald, red, beneath this a grey spot: sides of the head and back of the neck whitish: tail grey, tipped with black, nearly covered with the loose feathers from the pinions of the wings: legs black.*

153. *A. Ciconia.* White, with bald blackish orbits: quill-feathers and greater coverts black: bill, legs, and skin red.

White Stork. *Lewin t. 145. Albin t. 64. Walcot t. 125.*

*Length 3 feet 3 inches: size of the Turkey.*

*Bill 7 inches and a half long: some of the scapulars black.*

154. *A. Nycticorax.* Hind-head with a crest of 3 white feathers dusky at the ends: crown and back greenish-black: wings and tail pale ash-colour. *Fem.* head without crest, brown: back brown: over the eye a whitish streak: primary quill-feathers with a white spot at the tip.

Night Heron. *Lewin t. 146. Albin t. 49. Walcot t. 126.*

*Length 20 inches. Bill 3 inches 3 quarters long, black with a yellowish base: iris orange: lores and orbits yellow-green: front with a white band: neck and under parts whitish: legs yellowish-green: middle-claw ferrate on the inner edge. Female, with yellowish streaks on the fore-part of the neck: wings grey-brown, with yellowish-white streaks; some of the coverts and quill-feathers tipped with white.*

155. *A. stellaris.* Hind-head hardly crested: above pale yellow brick-colour with transverse black spots, beneath paler with oblong ones.

Bittern. *Lewin t. 147. Albin. t. 68, Walcot, t. 127.*

*Length 2 feet and a half: weight 22 ounces.*

*Bill 4 inches long, horn-colour inclining to green at the base: iris yellow: crown and spot at the corners of the mouth black: feathers on the hind-head, neck and breast, long and loose: legs pale green: inner-edge of the middle-claw ferrate.*

156. *A. minuta.* Head without crest: crown, back, quills and tail greenish-black: neck, breast, and wing-coverts buff-colour. *Fem.* above brown, the feathers with pale rufous margins; beneath paler: crown, back, quills and tail black.

Little Bittern. *Br. Zool. app. t. 8. Lewin t. 148. Donovan t. 54.*

*Length from the tip of the bill to the end of the toe 30 inches.*

*Bill 2 inches and a half long, greenish-yellow: belly and vent white: hind part of the neck bare: shoulders with a large bay spot: larger wing-coverts whitish, lesser yellow-buff: thighs feathered to the knees: legs dusky-green: middle-claw ferrate on the inner side.*

*Female. front surrounded by a bay line.*

157. *A. comata. b.* Head without crest: body white; upper-part of the head, hind-part of the neck, breast, and back inclining to rufous.

Squacco Heron. *Linn. Trans. iii. p. 335. Pl. enl. 910.*

*Length 21 inches. Bill yellow, between which and the eyes bare.*

and grey: *breast* with some long feathers hanging over it inclining to rufous: *wing-coverts* with a rufous tinge: *legs* yellow.

158. *A. cinerea*. Hind-head with a black pendent crest: body cinereous: neck with a black line underneath: breast with a black band. *Fem.* hind-head smooth, black: back bluish, beneath whitish: breast with oblong black spots.

Common Heron. *Br. Zool. t. 61. F. Lewin t. 149. M.*

*Length* 3 feet 2: *extent* 5 feet 4: *weight* 3 pounds and a half.

*Bill* near 6 inches long, dusky above, yellowish beneath: *iris* yellow, round the *eyes* a bare greenish skin: *front* and *crown* white: *neck* white on the upper-part, the fore part with a double row of black spots: *back* clothed with down, covered with the scapulars, which are grey and white, and like the feathers on the lower-part of the neck are narrow long and loose: *wings* with a white ridge, the coverts bluish-grey, the primary quills and bastard wings black: *sides* black: *breast* and *belly* white: *tail* bluish-grey: *thighs* dirty white: *legs* dirty-green: *middle-claw* ferrate inwardly.

*Female*, head bluish-grey.

159. *A. Gardeni*. Above dusky with white spots, beneath whitish with longitudinal dusky lines: greater quills edged and tipped with white: tail dusky.

Gardenian Heron. *Linn. Trans. v. p. 276. Pl. enlum. 939.*

*Length* about 20 inches: size of the Rook.

*Bill* dusky, green-yellow beneath: *lores* greenish: *back* without spots on the lower part: *lesser-coverts* with yellowish spots, greater ones with a white spot at the tip, forming 2 bands on the wings: *legs* dirty yellow: *middle-claw* ferrate inwardly.

160. *A. Garzetta*. Hind-head crested: body white: bill greenish black: lores and legs olive-green.

Little Egret. *Er. Zool. app. t. 7. Lewin t. 150. Donov. t. 98.*

*Length* to the end of the legs 32 inches: *weight* a pound.

*Bill* slender: *iris* yellow: *plumage* splendid white: *crest* consisting of several short and 2 long pendent feathers: feathers of the *breast* and *scapulars* long, loose, pendent, lacerated, reaching beyond and covering the tail: *claws* dusky, the middle-one ferrate inwards.

161. *A. alba*. Head without crest: body white: bill greenish-yellow: lores green: legs black.

White Heron. *Br. Zool. t. 62. Lewin t. 151.*

*Length* 53 inches: *extent* 60 inches: *weight* 40 ounces.

*Bill* nearly 6 inches long: *iris* and edges of the eyelids yellow: *middle-claw* ferrate on the inner-edge.

162. *A. caspica*. Hind-head somewhat crested, black: body grey: chin white: neck breast and belly ferruginous, the former with three black lines running down it.

African Heron. *Lewin t. 152. Walcot. t. 191.*

*Length* about 3 feet: smaller than the common Heron.

*Bill* 7 inches long, dusky yellow with a blackish point: *head* and greater part of the *neck* pale ferruginous: *crest* of black long feathers: feathers of the breast and rump long, loose, mixed grey and ferruginous: *back* and *wings* deep grey: *quills* and *tail* black: *belly* pale grey-ferruginous: *legs* dull yellow, the fore-part and *claws* black: *middle-claw* ferrate on the inner-edge.

### 35. TANTALUS. *Ibis*.

163. *T. igneus*. Head and neck black, the feathers fringed with white: orbits white: body glossed and variegated with blackish, blue, green and claret-red.



Glossy Ibis. *Lewin t. 153. Donovan t. 118. Walcot t. 132.*

Length 2 feet. Bill 5 inches long, roundish, curved, greenish-blue: iris olive: eyelids brown: beneath the chin a loose bald dilatable skin: quill and tail green-gold with a red and violet gloss: legs long, bright green: claws black, hooked.

164. *T. Falcinellus*. Face black; head and neck pale ferruginous: chin with transverse white lines: body dark chesnut mixed with green above, beneath paler: wings and tail dusky.

Bay Ibis. *Sowerby Brit. miscel. p. 35. tab. 17.*

Length 2 feet 6: extent 3 feet 2: weight 18 ounces.

Bill 5 inches long, horn-colour, dusky towards the base: iris dusky: face naked: plumage dusky-chesnut, with a green and purple gloss, beneath duller: legs bluish horn-colour: middle-claw pectinate on the inner-edge.

### 36. NUMENIUS. Curlew.

165. *N. Arquata*. Greyish-white with black streaks: wings blackish with snowy spots: legs bluish-grey.

Curlew. *Br. Zool. t. 63. Lewin t. 154. Walcot t. 133.*

Length 2 feet: extent 3 feet 3: weight 25-30 ounces.

Bill dusky, 4 inches and a half long: iris hazel: head, neck, scapulars and wing-coverts brown-grey, the feathers black in the middle: chin, rump, belly and vent white, with dusky spots: tail reddish-white, with dusky bars: legs bluish: toes flat and broad.

166. *N. Phæopus*. Greyish-white with dusky spots, those on the back and wing-coverts rhomboidal: quill-feathers dusky, the borders of the inner-webs barred with white: legs dusky-blue.

Whimbrel. *Br. Zool. t. 64. Lewin t. 155. Donovan t. 72.*

Length 18 inches: weight about 13 or 14 ounces.

Very much resembles the last, except in size; and the spots on the back and wings are larger and of a more rhombic form, and the quill-feathers are dusky and spotted with white on their inner-webs only.

167. *N. Guarauna*. Head and neck brown with whitish spots: back and belly chesnut-brown: wing-coverts rump and tail bright brown, with a green gloss.

Brasilian Whimbrel. *Will. Ornith. p. 292. t. 53.*

Shot a year or two since in Anglesea. *Dillwyn.*

Body 21 inches long. Bill 4 inches long, arched, brown with a yellowish base: feathers of the head and neck brown with a whitish margin: scapulars, rump, upper and under tail-coverts and tail bright brown with a green gloss: wing-coverts the same, the greater-ones brown within: quills brown, the outer-ones with a green gloss: legs grey-brown: claws blackish.

168. *N. pigmæus*. Above variegated with brown, ferruginous and white; beneath and vent white: quills and outer tail-feathers edged with white.

Pigmy Curlew. *Lewin t. 156. Walcot t. 134.*

Length 8 inches and a half: extent 15 and a half: weight near 2 oz.

Bill black, an inch and a half long: primary quill-feathers dusky, edged with white: tail dusky, the outer-feathers edged with white: legs black.

### 37. SCOLOPAX. Snipe.

169. *Sc. rusticola*. Variegated with ferruginous black and

grey, beneath reddish-grey with dusky bars: lores black: thighs feathered nearly to the knees.

Woodcock. *Br. Zool. t. 65. Lewin t. 157. Walcot. t. 136.*

*Length 14 inches: extent 26: weight about 13 ounces.*

*Bill 3 inches and a half long, dusky towards the tip, furrowed along the side of the upper-mandible: iris hazel: front and chin grey: from the bill to the eyes a black stripe: tail short, dusky, the outer-webs ferrate with rufous, the tips grey: legs pale brown.*

170. *Sc. major.* Above testaceous variegated with black and grey, beneath dirty-white spotted with black: crown with a testaceous stripe down the middle, and a black one each side of it.

Great Snipe. *Lewin t. 158. Walcot t. 137.*

*Weight 8 ounces. Bill black, yellowish at the base: above and beneath the eyes a testaceous streak: head and neck spotted with black: back, scapulars and coverts varied with testaceous black and grey: breast and belly with heart-shaped spots: sides undulate with black: tail ferruginous, barred with black: legs blackish.*

171. *Sc. Gallinago.* Bill tubercled: body variegated with blackish and fulvous, beneath white: front with 4 brown lines.

Common Snipe. *Br. Zool. t. 68. Lewin t. 159. Walcot t. 138.*

*Length a foot: extent 18 inches: weight about 4 ounces.*

*Bill 3 inches long, dusky, flattish and rough at the end; head with 4 brown lines, between which are 3 ferruginous ones: lores dusky: throat white: neck and breast spotted with black: belly and vent white: quills black, the first edged with white: back black, with tawny bars and pale buff lines: tail-feathers black at the base: legs lead-colour or brown,*

172. *Sc. Gallinula.* Bill tubercled: above variegated, with a green and purple gloss: from the shoulders to the tail 2 deep buff stripes: lores brown: legs greenish.

Jack Snipe. *Br. Zool. t. 68. Lewin t. 160. Walcot t. 139.*

*Length 8 inches and a half: extent 15: weight about 8 ounces.*

*Bill lead-colour, black at the end: iris dusky: crown black, with a yellowish border: over the eyes a yellowish streak: neck varied with whitish, brown, and pale red: rump glossy bluish-purple: wing-coverts bordered with grey and brown: belly and vent white: tail-feathers pointed, brown with tawny borders.*

173. *Sc. lapponica.* Bill a little bending upwards, yellowish: head, neck and breast reddish-ferruginous: outer tail-feathers half white: legs blackish.

Red Godwit. *Br. Zool. t. 67. Lewin. t. 161. Walcot t. 140.*

*Length 18 inches: weight about 12 ounces.*

*Bill dusky at the point: iris hazel: body dusky above with ferruginous spots: head bright ferruginous with dusky lines: breast and sides with blackish transverse lines: quills blackish, tipt with white: belly and vent white, with dusky and pale ferruginous marks: tail-feathers, except the 2 middle-ones, partly black partly white.*

174. *Sc. ægocephala.* Bill very slightly bending upwards; body grey, more or less tinged with pale ferruginous, with dusky spots: belly and vent white: tail with dusky bars.

Common Godwit. *Lewin t. 162. Donovan t. 75. Walcot t. 141.*

*Length about 16 inches: weight 12 ounces or more.*

*Bill* dusky at the point: *iris* hazel: from the bill to the eye a broad white stripe: *chin* white, sometimes spotted: *neck*, *breast*, and *back*, with or without a ferruginous tinge: *quill-feathers* dusky, more or less tipped or edged with white: *tail-coverts* mostly white: *legs* dusky or bluish.

175. *Sc. limosa*. *Bill* slightly bending upwards: body grey-brown with a mixture of ferruginous: belly, vent, and rump white: quills white at the base, except the 4 first: tail white at the base.

Jadrega Snipe. *Lewin t. 163. Buffon 7. p. 500. t. 27.*

*Length* 17 inches: *extent* 28 inches: *weight* 9 ounces.

*Bill* yellowish at the base, and surrounded with reddish feathers: *iris* whitish: *cheeks* reddish: over the eyes a white line: *back* brown: first 3 *quill-feathers* with a white shaft: *wings* with a white line: 2 middle *tail-feathers* black, the rest more and more white: *legs* dusky.

176. *Sc. Glottis*. Grey-brown with blackish spots: eyebrows, lower part of the back, and under parts white: tail white with dusky bars: legs dusky-green.

Greenshank. *Lewin t. 164. Walcot. t. 142. Will. t. 55.*

*Length* 14 inches: *extent* 28 inches: *weight* about 6 ounces.

*Bill* dusky, slender, the upper-mandible curved a little downwards at the tip, the lower upwards: *head* and *neck* with dusky lines: over the eyes a white line: *wing-coverts*, *scapulars*, and some of the inner quills with a gloss of green: *quills* dusky, with white spots on the inner-webs: *legs* long, slender.

177. *Sc. Totanus*. Blackish with white spots: breast white with fine black lines: belly and vent white: lateral tail-feathers whitish with blackish bars: legs red.

Spotted Snipe. *Lewin t. 165. Albin ii. t. 71.*

Size of the last. *Bill* reddish at the base: *iris* reddish: *head* pale ash with black streaks: *back* dusky, with triangular white spots: *wing-coverts* ash-colour, with triangular white spots: *quills* dusky: middle *tail-feathers* grey.

178. *Sc. canescens*. Variegated with cinereous and white: throat and breast whitish, the latter with cinereous spots: tail with cinereous bars.

Cinereous Godwit. *Pennant Brit. Zool. ii. n. 180. t. 66.*

Size of *S. Glottis*, but the *bill* is black and much thicker, and the *legs* ash-colour.

179. *Sc. Cantabrigensis*. Grey-brown, beneath white: wing-coverts and tail-feathers with blackish bars: legs orange-red.

Cambridge Godwit. *Penn. Brit. Zool. ii. p. 447. n. 185.*

Larger than *S. Calidris*. Lesser *wing-coverts* brown, edged with dirty white, and barred with black: *primaries* dusky, whitish on their inner sides: *secondaries* barred with dusky and white: under side of the *neck* and *breast* dirty white: *belly* and *vent* white: *tail* with cinereous and black bars.

180. *Sc. Calidris*. Variegated white brown and grey: bill red: legs orange-red: over the eyes a white line: secondary quill-feathers tipped with white.

Redshank. *Brit. Zool. t. 65. Lewin t. 166. Donovan. t. 112.*

*Length* 12 inches: *extent* 22: *weight* 5 ounces and a half.

*Bill* with a black tip: *iris* hazel: *head* and *neck* grey-brown with

dusky spots: *back* and *scapulars* greenish-brown with dusky spots: *quills* dusky, some of them tipped with white: *lores* dusky: *chin* and *neck* dirty white with dusky streaks: *belly*, *vent* and *rump* white with dark spots: *tail* with black bars.

181. *Sc. grisea*. Grey-brown clouded with black: wings brown: back dark brown edged with grey and rufous-brown: belly white: rump and tail barred with black and white.

Brown Snipe. *Montague Ornith. Dict.*

*Length* 11 inches: *weight* 3 ounces and a quarter.

*Bill* dusky, lighter at the base, rough near the tip: *iris* dusky: *lores* dusky, with a white line over them: greater *quills* dusky, inner-ones slightly tipped with white: sides of the *vent* and under *tail-coverts* rufous-white with dusky bars: *legs* yellowish-green.

### 38. TRINGA. Sandpiper.

182. *T. pugnax*. Bill and legs yellow-buff: face covered with yellow pimples: wing-coverts grey-brown: middle tail-feathers barred with black, the 3 outer-ones plain grey brown.

Ruff and Reeve. *Br. Zool. t. 69. Lewin t. 167. Donovan t. 33.*

*Length* about a foot: *extent* of wings nearly 2.

*Bill* sometimes black: *iris* hazel: general *plumage* very variable, but commonly brown with black and white marks, and the under parts more or less white. The *Male* in the second year is adorned with a spreading ruff of feathers on the neck, which falls off in moulting time. *Female* pale brown, spotted with black on the back: tail brown, the middle-feathers spotted with black.

183. *T. Vanellus*. Crown glossy-black with a long pendant crest: back and wings glossy-green: breast black: legs orange.

Lapwing, Pewit. *Lewin t. 168. Donovan t. 25, Walcot. t. 146.*

*Length* 13 inches: *extent* 30 inches: *weight* about 8 ounces.

*Bill* black: *iris* hazel with a green gloss: *crest* of unequal feathers, a little turning up at the end: sides of the head and neck white: over the eyes a whitish streak, and a black one beneath them: lower-part of the neck before, and breast black: the hind-part brown mixed with white: belly white: *vent* and *tail-coverts* pale rufous: back and wing-coverts dull green with a purple and blue gloss: *quills* black, the 4 first tipped with white: secondaries white on the upper half: tail black on the lower half tipped with white, the outer feathers nearly all white.

184. *T. Gambetta*. Bill reddish, a little curved upwards: body variegated dusky-grey and pale buff, beneath whitish with a few dusky streaks: legs yellow.

Gambet. *Br. Zool. t. 70. Lewin t. 169. Albin ii. t. 68.*

Size of *S. Glottis*. *Bill* black at the point: *iris* yellowish: head, back and breast grey-brown with dull yellow spots: *coverts* and *scapulars* grey, edged with dirty yellow: wings longer than the tail, the first feathers dusky bordered with yellow.

185. *T. Squatarola*. Bill black: body grey with dusky spots, beneath white: tail barred black and white: legs dull green.

Grey Sandpiper. *Lewin t. 170. Walcot. t. 146.*

*Length* 12 inches: *extent* 24 inches: *weight* 7 ounces.

Feathers of the head, back and *coverts* dusky edged with greenish-ash, and some with white: cheeks and throat white with a few dusky streaks: *quills* black, the inner-webs more or less white: rump white: back-toe very small.



186. *T. nigricans*. Base of the bill and legs red : head and neck dusky black : back and scapulars purple black, with cinereous edges ; chin and middle of the belly white.

Purple Sandpiper. *Transact. Linn. Soc.* 4. p. 40. tab. 2.

2. Bill yellow at the base. *Linn. Trans.* 4. p. 22. t. 1.

Length 8 inches and a half : extent above 15 : weight 2 oz. & a half.

Bill black at the point : eyelids whitish : back and shoulders with a purplish tinge : wing-coverts black tipped with white : primary quills dusky with white shafts and edges ; secondaries paler with white tips, inner-most nearly white : chin whitish : neck and breast dusky with white lines : sides with dusky spots : middle tail-feathers black, the outer-ones dark grey.

187. *T. ochropus*. Bill dotted at the point : back and scapulars brown with a green gloss, with roundish white spots : chin, belly, and outmost tail-feathers white : legs dull green.

Green Sandpiper. *Lewin t.* 171. *Linn. Trans.* i. p. 130. t. 2.

Length full 16 inches : extent 18 : weight 3 oz. and a quarter.

Bill dusky : iris hazel : crown and nape dusky-grey : face dusky : over the eyes a dirty white streak : neck and breast with dusky streaks : sides dusky with angular white lines : wing-coverts brown with a green gloss : quills dusky : tail-feathers, except the outer-ones, barred with black : the coverts white.

188. *T. Glareola*. Bill smooth : above dusky with whiteish spots, beneath white : neck cinereous.

Wood Sandpiper. *Arct. Zool.* ii. p. 482. G.

Length 9 inches : weight 2 ounces and a quarter.

Bill dull green at the base, black towards the point : iris dusky : from the bill to the eyes a dusky streak, over which is a white-one : ears dusky : neck dusky with grey lines : chin and throat white : quills black, some of them tipped with white : tail barred black and whitish : legs long, olive-green.

189. *T. grenovicensis*. Variegated with dusky, grey, and pale ferruginous : neck pale grey beneath : belly, vent, and sides of the rump white.

Greenwich Sandpiper. *Lewin t.* 181. *Walcot t.* 154.

Length 12 inches and a half : weight nearly 8 ounces.

Bill black : crown reddish-brown with black streaks : cheeks and neck pale grey with dusky shafts : feathers of the back, shoulders, and coverts dusky with pale ferruginous margins : quills dusky, the shafts more or less white : tail brownish-grey, clouded and tipped with pale ferruginous : legs dusky-green.

190. *T. cinerea*. Grey, with white and dusky crescent-like spots : throat and belly white : rump white with undulate black bars : tail-feathers edged with white.

Ash-coloured Sandpiper. *Lewin t.* 172. *Walcot t.* 147.

Length 10 inches : extent 20 inches : weight 5 ounces.

Bill black : head and neck ash-colour spotted with black : back and shoulders grey, with dirty-white curved marks : outer-quills dusky, more or less edged with white : breast and sides white spotted with black : legs dusky-green : toes edged with a narrow finely scalloped membrane.

191. *T. maritima*. Variegated dusky ash-colour and grey, beneath white : throat and tail dusky : feathers of the breast fringed with white : 4 lateral tail-feathers edged with white.

- Sea Sandpiper. *Transact. Linn. Soc. iv. p. 22. t. 1.*  
*Length* near 9 inches : *extent* near 16 : *weight* 2 oz. and a half.  
*Bill* yellow at the base, black towards the point : primary *quills* dusky, with white shafts ; secondary lighter, with white tips ; hinder-ones nearly white : 4 middle *tail-feathers* dusky and longer than the rest : *sides*, *thighs* and *vent*, with a few dusky spots : *legs* yellow.
192. *T. fusca*. Pale brown spotted with black, beneath white : neck with black streaks underneath : wing-coverts dusky edged with dirty white : tail cinereous.  
 Brown Sandpiper. *Br. Zool. ii. p. 463. n. 195.*  
*Size* of the Jack Snipe. *Bill* and *legs* black.
193. *T. lincolniensis*. White, with grey and dusky spots above, and oblong brown and black spots beneath : 2 middle *tail-feathers* entirely black.  
 Black Sandpiper. *Br. Zool. ii. p. 464. n. 197.*  
*Size* of a Thrush. *Bill* short, dusky and obtuse at the point : *nostrils* black : *iris* yellow : *head* small, flattened at top : *wings* long ; *quills* black, crossed with a white line near the base : *tail* short, entirely white, except the 2 middle *feathers* : *legs* reddish-brown.
194. *T. Hypoleucos*. *Bill* smooth : above grey with a greenish gloss and dusky transverse lines, beneath white : over the eyes a whitish stripe : legs dark grey.  
 Common Sandpiper. *Br. Zool. t. 71. Lewint. 173. Walc. t. 148.*  
*Length* 7 inches and a half : *extent* 13 : *weight* 2 ounces.  
*Bill* brown : *iris* hazel : *back* and *scapulars* with a greenish-gloss : *wings* greenish brown, crossed with narrow dusky undulate lines : *quills* dusky, with a white spot on the inner-web, except the outmost : *tail* with a greenish gloss, the 4 middle *feathers* crossed with dusky bars, the 2 next *tip* with white, the rest spotted or barred with white : *legs* dull green.
195. *T. macularia*. Base of the *bill* and *legs* reddish : body spotted above and beneath : over the eyes a white stripe : wings with 2 white bars.  
 Spotted Sandpiper. *Lewint. t. 174. Walcot. t. 149.*  
*Length* near 8 inches : *breadth* 14. *Size* of a Thrush.  
*Bill* dusky towards the point : *body* above greenish-brown with triangular dusky spots, becoming larger and more rounded downwards, plain on the rump ; beneath white with roundish dusky spots : 2 middle *tail-feathers* greenish-brown, the rest white with dusky bars. *Female* without spots on the belly.
196. *T. Cinclus*. *Bill* and *legs* black : lores white : body and rump mixed grey and brown : *tail-feathers* with light edges.  
 Purre. *Br. Zool. t. 71. Lewint. 175. Donov. t. 32.*  
*Length* 7 inches : *extent* 13 : *weight* an ounce and 3 quarters.  
*Iris* dusky : *body* above dark grey, with dusky streaks : greater *coverts* *tip* with white ; first *quills* dark brown, secondaries with a white spot in the middle and *tip* with white : fore-part of the neck mixed with brown : *breast* and *belly* white. *Female* larger, and the plumage lighter.
197. *T. alpina*. *Bill* and *legs* dusky-ferruginous with dusky spots : *breast* and *belly* with blackish blotches : *tail-feathers* grey edged with white.

Dunlin. *Lewin t. 177. Walcot. t. 151.*

*Length* 8 inches : *extent* 15 : *weight* an ounce and a half.

*Iris* dusky : *head* and *nape* with dusky streaks : *lores* brown, with a white stripe over them : *quills* blackish, the inner-ones more or less whitish on the inner-webs : *vent* with a few dusky streaks : 2 middle *tail-feathers* dusky edged with white.

198. *T. pusilla*. Bill and legs dusky : brown with blackish spots, beneath dirty white : quills dusky tipped with white : outmost tail-feathers with a white shaft : rump variegated.

Little Sandpiper. *Penn. Gen. of birds. t. 12. Lewin t. 176.*

*Length* barely 6 inches : *extent* 12 : *weight* 6 drachms.

*Bill* black at the point : *plumage* of the upper-parts brown, edged with blackish and pale rufous : greater *coverts* dusky tipped with white : *breast* and *belly* dirty white : *tail* dusky with paler edges : *legs* blackish.

199. *T. flavipes*. Base of the bill and legs yellow : above grey-brown with dusky spots, beneath and rump white : beneath the spurious wings a white patch.

Yellow-legged Sandpiper. *Montague ornith. Dict. append.*

*Length* 11 inches and a half. *Bill* black towards the point : *iris* light yellow : *head* and *neck* cinereous with dusky streaks : primary *quills* dusky, the first with a white shaft ; secondaries white on the lower half ; *tail* grey brown, the under-coverts with dusky specks : *legs* orange-yellow.

200. *T. islandica*. Bill and legs brown : above brown with dusky and grey variations, beneath ferruginous : secondary wing-coverts edged with white.

Red Sandpiper. *Lewin t. 178. Br. Zool. t. 72.*

2. Breast reddish-brown, mixed with dusky : belly and vent white. *Aberdeen Sandpiper. Brit. Zool. n. 203.*

*Length* 10 inches. *Bill* a little bent at the point : *crown* spotted black and ferruginous : lesser *wing-coverts* cinereous : *quills* dusky, the secondaries tipped with white : *breast* and *belly* with a few blackish spots : 2 middle *tail-feathers* dusky, the rest cinereous.

201. *T. Canutus*. Above grey with dusky-grey spots, beneath white with dark spots : rump white with dusky crescents : primary quill-feathers serrate : outmost tail-feather whitish, immaculate.

Knot. *Lewin t. 197. Flor. Scot. 1. p. 34. t. 3. Edw. t. 276.*

*Length* 9 inches : *extent* 20 : *weight* 4 oz. and a half.

*Bill* smooth, dusky-grey ; *iris* hazel : *lores* dusky : *head* and *neck* grey with obscure dusky lines : *wings* with a white bar, the greater quills with white shafts : *tail* ash-colour, the outmost feathers whitish : *legs* bluish-grey.

202. *T. Interpres*. Legs red : body variegated black, white, and ferruginous : fore-part of the neck black : chin, breast and belly white.

Turnstone, Sea Dottrel. *Lewin t. 180. Walcot t. 152. Fl. Scot. t. 3.*

2. Body grey : breast black : tail blackish, white at the base. *Br. Zool. n. 199. Walc. t. 152.*

*Length* 9 inches : *extent* 16 inches : *weight* about 4 ounces.

*Bill* black, a little turned upwards : *iris* hazel : *front* white : *head* mostly with brown spots : upper-part of the neck white : *cheeks* and *lores* black : over the eyes a white stripe : *breast* crossed on the upper part by a broad black band : *quills* dusky, the secondaries tipped with white : upper *tail-coverts* white with a black band : *tail* black, tipped with white except the 2 middle-feathers : *legs* orange.

39. CHARADRIUS. *Plover.*

203. *Ch. pluvialis*. Blackish with yellowish-green spots : front, belly and vent white : legs blackish.

Golden Plover. *Brit. Zool. t. 72. Lewin t. 182. Walc. t. 158.*

*Length* above 10 inches : *extent* 24 inches : *weight* 9 ounces.

*Bill* dusky : *iris* dull red : *orbits* and *chin* whitish : *quills* dusky, slightly edged with grey at the ends : *belly* sometimes black, or mixed black and white : *tail* with dusky and yellowish bars : *feet* with sometimes a small toe behind.

204. *Ch. Cantianus*. Grey-brown, beneath, front, and throat white : crown crossed by a black band : hind-head ferruginous : bill and legs blackish.

Kentish Plover. *Lewin t. 186. Lath. Suppl. 2. p. 316.*

Size of the last, from which it differs in having the bill and legs blackish, in wanting the broad black collar beneath the white one; in having a broad black patch near the shoulders, in the hind-head being of a pale ferruginous, and in having the end of the tail black and more pointed.

205. *Ch. Calidris*. Bill and legs blackish : lores and rump greyish : head and back grey, with slight dusky streaks : front and body beneath white, immaculate.

Sanderling, Carwillet. *Br. Zool. t. 73. Lewin t. 184.*

*Length* 8 inches : *extent* 15 inches : *weight* near 2 ounces.

*Bill* an inch long : *iris* dusky ; *cheeks* and over the *eyes* white : *body* above grey : with dusky streaks : *quills* dusky, the secondaries grey tipped with white : *tail* shorter than the wings, grey with paler margins. *Female* with a ferruginous tinge. *Young bird* with large black angular spots on the back.

206. *Ch. Hiaticula*. Grey-brown, beneath white : crown crossed by a black band : neck with a white collar, beneath which is a broad black-one : legs orange.

Ringed Plover. *Lewin t. 185. Donovan t. 18. Walcot. t. 161.*

*Length* 7 or 8 inches : *extent* 16 inches : *weight* nearly 2 ounces.

*Bill* orange, tipped with black : *iris* hazel : from the bill to the *eyes* a black stripe ending in a broad black patch ; *front* white : *hind-head* grey-brown : greater *wing-coverts* partly tipped with white : *quills* dusky : *tail* black towards the end, tipped with white.

207. *Ch. Morinellus*. Breast dull orange, over which is a white band, and above that a black one : across the *eyes* a white stripe : legs blackish.

Dottrel. *Br. Zool. t. 73. Lewin t. 187. Donovan t. 42.*

*Length* near 10 inches : *extent* 18 : *weight* about 4 ounces.

*Bill* dusky, depressed in the middle : *front* dusky and grey : *hind-head* blackish : *cheeks* and *chin* white : *back* and *wings* brownish-olive, with pale ferruginous margins : middle of the *belly* blackish, reddish-white beneath : *quills* dusky, the outer-web of the first white : *tail* olive-brown, with a blackish band near the end, tipped with white.

40. CURSORIUS. *Courser.*

208. *C. Himantopus*. Bill longer than the head ; body white, with glossy black back and wings : legs red.

Charadrius Himantopus. *Linn. Syst. Lath. Synopsis.*

Long-legged Courser. *Lewin t. 183. Donovan t. 55. Walc. t. 159.*

*Length* from the end of the bill to the end of the tail 13 inches, to the end of the claws 18 : *extent* 2 feet 6 : *weight* 5 ounces.

*Bill* black, 2 inches and a half long, tapering to a point, the upper mandible a little longer and bent over the lower : *iris* red :



front, orbits, and rump white: crown black: neck with or without dusky streaks: tail greyish, the outer feathers white: legs 4 inches and a half long: claws black.

*Obs.* From its slender make, sharp-pointed slightly-curved bill, and long legs, this bird appears rather to belong to this genus, than that of *Charadrius*.

209. *C. europæus*. Cream-colour with dusky streaks, sides of the head chin and belly paler: through the eyes a pale streak: quills and spot near the tip of the lateral tail-feathers blackish: legs pale buff.

European Courser. *Lewin t.* 188. *Lath. Suppl. t.* 116.

Size of the golden plover, but of a more slender make.

Bill black, 3 quarters of an inch long: iris hazel: behind the eyes a blackish patch: plumage above cream-colour with undulate transverse dusky lines, darker on the back: tail cream-colour, marked with black near the tip except the 2 middle feathers.

#### 41. HÆMATOPUS. Sea-pie.

210. *H. ostralegus*.

Pied Oyster-catcher. *Br. Zool. t.* 74. *Lewin t.* 189. *Donov. t.* 62.

Length 16 inches: extent 31 inches: weight 16 ounces and a half.

Bill 3 inches long, orange: iris crimson: under the eyes a small white spot: body above black, beneath white: throat black, with or without a white crescent across it: breast and belly white: wings crossed with a white band: rump and upper-half of the tail white: legs orange: claws black.

#### 42. RALLUS. Rail.

211. *R. aquaticus*. Above olive-brown with dusky spots, beneath dark-grey: flanks with transverse black and white spots: lower mandible reddish.

Water Rail. *Br. Zool. t.* 75. *Lewin t.* 190. *Donov. t.* 104.

Length 12 inches: extent 16: weight 4 ounces and a half.

Bill black above edged with red: iris red: crown with a white spot: plumage above black edged with dingy-brown: chin dirty-white: sides of the head, forepart of the neck and breast dark hoary lead-colour, slightly tinged with pale rufous: ridge of the wings white, the inside barred with brown and white, quills and secondaries dusky, side-feathers barred with black and white, and slightly tipped with a pale reddish-brown: inner-side of the thighs and vent pale yellowish-brown: tail of 12 feathers, dusky edged with brown: legs placed far behind, dull dirty flesh-colour: toes long, without any connecting membrane. *Dillwyn.*

#### 43. GALLINULA. Gallinule.

212. *G. Crex*. Rufous-brown, with blackish spots, beneath pale yellowish-brown: wings reddish-bay.

Crake, Land Rail. *Br. Zool. t.* 75. *Lewin t.* 191. *Donovan t.* 116.

Length 9 inches and a half: weight from 6 to 8 ounces.

Bill grey-brown: iris light hazel: chin very pale: flanks with a few transverse brown streaks: greater wing-coverts whitish at the ends: quills dusky-bay: tail like the back: legs pale brown.

213. *G. chloropus*. Front fulvous: garters red: body blackish: outer edge of the wings and vent white.

Moor-hen. *Br. Zool. t.* 77. *Lewin t.* 192. *Donovan t.* 110.

Length 14 inches: extent 22: weight about 15 ounces.

Bill red at the base, greenish towards the point: iris reddish: body above deep olive brown, beneath paler: flanks with white stripes: quills and tail dusky brown: above the knees a red garter:

legs dull green. *Female* without the red on the bill, and in some the chin and belly are marked with white.

214. *G. Porzana*. Above olive-brown variegated and spotted with dusky and whitish, beneath grey with white and brown spots: 2 middle tail-feathers edged with white.

Spotted Gallinule. *Lewin t. 193. Donov. t. 122. Walcot. t. 172.*

*Length* 9 inches: *extent* 15: *weight* above 4 ounces.

*Bill* greenish-yellow, reddish at the base: *Iris* reddish: over the eyes a grey stripe: *flanks* with dusky and white bars: *vent* and under *tail-coverts* yellowish-white: *legs* pale olive-green.

## ORDER VII. PINNATIPEDES,

### 44. PHALAROPUS. *Phalarope*.

215. *Ph. hyperboreus*. Grey, beneath white: breast grey: wings with a white band: beneath the rump white: sides of the neck ferruginous. *Female*, grey beneath: eye-brows and base of the greater wing-coverts reddish: rump rufous.

Red Phalarope. *Sow. Misc. t. 10. Lewin t. 194. Br. Zool. t. 76.*

*Length* 7 or 8 inches. *Bill* black: *iris* hazel: *eyebrows* white: *scapulars* margined with dull yellow: *quills* dusky, the secondaries tipped with white: *rump* barred dusky and white: *tail* dusky: *legs* lead-colour. *Female* above blackish with rufous margins: over the eyes a rufous streak: rump rufous: breast and belly rufous.

216. *Ph. lobatus*. Bluish-grey with dusky spots, beneath white: head white: wing-coverts, wing and tail-feathers blackish, with whitish margins.

Grey Phalarope. *Br. Zool. t. 76. Lewin t. 195. Walcot t. 156.*

Size something larger than the Purre: *weight* an ounce.

*Bill* black, a little flattened at the top: *crown* often with a dark patch: *cheeks* with a dusky spot: *legs* compressed, lead-colour.

### 45. FULICA. *Coot*.

217. *F. atra*. Front white or reddish: body blackish, beneath dusky-grey: wings edged with white: garters yellow.

Bald Coot. *Br. Zool. t. 77. Lewin t. 196. Donovan t. 106.*

2. Larger, plumage deeper: front white: garters black.

3. White, with a few black spots on the head and wings.

*Length* 16 inches: *extent* 30: *weight* 24-28 ounces.

*Bill* pale: *iris* hazel: *legs* dull green. *Female* rusty-brown on the breast.

### 46. PODICEPS. *Grebe*.

218. *P. cristatus*. Dusky brown, beneath white: head rufous, enlarged with a crest: collar black: inner quills white, *Adult bird*. Cheeks and throat with a bright tawny pendent ruff, 2-year old. Head smooth, wings with a white spot, *Young bird*.

Crested Grebe. *Br. Zool. t. 78. Lewin t. 197. Donov. t. 68.*

*Length* 23 inches: *breadth* 33: *weight* between 2 and 3 pounds.

*Bill* dusky towards the point, reddish at the base: *iris* crimson: *crest* erect each side the head, dusky: from the bill to the eyes a

black line, with a white one above it : primary *quills* dusky, some of the inner-ones tipped with white : legs dusky or greenish.

219. *P. auritus*. Blackish-brown, breast and belly white : ears with an orange tuft : sides dull ferruginous.

2. Head and tufts brown : sides of the head white : neck before and sides white with ferruginous spots.

Eared Grebe. *Br. Zool. t. 79. Lewin t. 198. Donovan. t. 29.*

*Length* 12 inches : *extent* 22 : *weight* 1111

*Bill* black, reddish at the base : *iris* red : *head* and *neck* black : *wings* with a white band and edge near the first joint : *legs* dusky or dull green.

220. *P. obscurus*. Dusky-brown, beneath white : from the bill to the eyes a bald reddish or brown stripe : edge of the wings and middle quill-feathers white.

Dusky Grebe. *Br. Zool. t. 78. Lewin t. 199. Donovan. t. 44.*

*Length* 11 inches : *extent* 20 : *weight* 1111

*Bill* blackish, with a red or flesh-colour edge : *iris* red : *cheeks* in some ferruginous : *front* often white : *primary quills* dusky : *legs* dusky green, sometimes spotted between them.

221. *P. Cornutus*. Head crested, tumid, black with a tinge of green : from the bill through the eyes a dull orange bar : under part of the neck bright chesnut.

Horned Grebe. *Sloan Jam. t. 271. f. 1. Montague Dict.*

*Length* 13 inches and a half : *extent* 22 : *weight* 1111

*Bill* dusky : *iris* and *lores* crimson : round the *pupil* a circle of white : *cheeks* and *throat* with a blackish-green ruff : from the *bill* a broad orange stripe forming a tuft on each side the hind-head : *front* dark ferruginous : *body* above dark brown mixed with ferruginous and grey : *inner-quills* white : *chin* black, a little mixed with white : *belly* and *vent* glossy white : *legs* dusky on the outside, pale within.

222. *P. rubricollis*. Head slightly crested : body above deep brown : cheeks and chin pale cinereous : forepart of the neck red ferruginous : belly and secondary quills white.

2. Head smooth, black : neck mixed with dusky on the fore-part : belly mottled with dusky.

3. A white band across the lower part of the neck.

Red-necked Grebe. *Lewin t. 200. Donovan t. 6. Walcot t. 103.*

*Length* 18 inches : *extent* 2 feet 4 : *weight* 1111

*Bill* black, yellowish towards the base : *iris* orange : *lores* brown or blackish : *cheeks* and part of the *neck* light grey : *breast* mixed ferruginous and dusky : *sides* with dusky marks : *wings* with a white band : *legs* dusky.

223. *P. minor*. Reddish-brown, breast and belly silvery-white mottled with grey : cheeks pale ferruginous : fore-part of the neck grey : lowest part of the rump and spot on the wings silvery-white.

Didapper, Dabchick. *Lewin t. 291. Donovan t. 56. Walcot t. 105.*

*Length* 10 inches : *extent* 17 inches : *weight* 6-7 ounces.

*Bill* brown : *iris* red-hazel : *cheeks* in the young bird and female light grey, and the plumage with a less mixture of ferruginous : *quills* dusky, the inner-webs of the lesser white : *legs* dirty green.

224. *P. hebridicus*. Blackish, chin black : fore-part of the neck ferruginous, hind-part with a dusky mixture : belly mixed silvery white and grey.

Black-chinned Grebe. *Sow. t. 71. Br. Zool. t. 79. Lewin t. 202.*

Body 8 inches long: *iris* reddish-hazel; *under-mandible* with a triangular yellowish patch at the base: *eggs* white.

## ORDER VIII. PALMIPEDES.

### 47. RECURVIROSTRA. *Avocet.*

225. *R. Avocetta.* Bill and head black: above varied with black and white, beneath white: legs blue.

Scooping Avocet. *Br. Zool. t. 80. Lewin t. 203. Walcot t. 66.*

Length 10 inches, to the end of the toes 22: weight 13 ounces,

Bill near 4 inches long, flexible: *iris* hazel: under the eyes a white spot: *cheeks* white: outer *scapulars*, middle *wing-coverts*, and greater *quills* black: edge of the *wings*, greater *coverts*, *back*, and *tail* white: *toes* webbed more than half their length.

### 48. ALCA. *Auk.*

226. *A. impennis.* Above black, beneath white: bill 2-edged, grooved across: between the bill and eyes an oval white spot: lesser quills tipped with white.

Great Auk. *Br. Zool. t. 81. Lewin t. 223. Walcot t. 86.*

Length 3 feet: size nearly that of a goose.

Bill black, much compressed and curved, the base of the upper-mandible covered with short velvety feathers: *wings* very small: *legs* black.

227. *A. arctica.* Above and round the throat black, beneath and sides of the head white: bill 2-edged, crossed with 4 grooves: eyelids with a triangular callous protuberance above: legs orange.

Puffin. *Lewin t. 226. Donovan t. 6. Walcot t. 87.*

Length 12 inches: extent 20: weight 12 ounces.

Bill short, very deep at the base, the half near the head bluish-grey the other half red: upper-mandible furrowed at the base with a callous dotted ridge, with 4 white furrows in the red part: lower mandible with only 3 furrows: *nostrils* an oblong cleft at the bottom of the upper-mandible: *eyelids* with a triangular bluish callosity above and an oblong transverse one below: *chin* white or grey: *claws* black.

228. *A. Torda.* Brownish-black, beneath white from the middle of the throat: wings with a white band: bill crossed with 4 grooves: from the bill to the eyes a white line.

Razor-bill. *Br. Zool. t. 82. Lewin t. 225. Donovan t. 64.*

Length 18 inches: extent 27: weight 27 ounces.

Bill much compressed, black, the middle-groove white: *head*, *chin*, *throat*, and *neck* dusky-black: *quill-feathers* with a mixture of grey on the outer webs: *tail-feathers* pointed: *legs* dusky.

229. *R. Pica.* Black, beneath white, including the sides of the head, chin and throat: wings with a white band: bill crossed with 3 furrows or none.

Black-billed Auk. *Walcot t. 85. Briss. vi. t. 8. f. 2.*

Less than the last, from which it differs in having the sides of the head, *chin*, and *throat* white: *mouth* white within: and the furrow on the *bill* next the base white.

230. *A. Alle.* Black, beneath white: wings with a white band: bill convex, conic, without grooves. legs greenish-black.



Little Auk. *Br. Zool. t. 82. Lewin t. 224. Walcot t. 88.*

*Length 9 inches : weight about 4 ounces.*

*Bill black : the whole of the head, chin, throat, and neck sometimes black.*

#### 49. URIA. Guillemot.

231. *U. Troile.* Blackish-brown, breast and belly white: secondary quill-feathers tipped with white.

*Foolish Guillemot. Lewin t. 221. Donovan. t. 28. Walcot t. 96.*

*2. Body spotted with white. Br. Zool. t. 83.*

*Length 17 inches : extent 27 : weight 25 ounces.*

*Bill black, 3 inches long : iris dusky : from the eyes a dusky streak pointing backwards : sides with a few dusky streaks : legs dusky.*

232. *U. minor.* Black-brown, cheeks and all beneath white; secondary quill-feathers tipped with white.

*Lesser Guillemot. Br. Zool. t. 83. f. 1.*

*Length about 16 inches : weight 18 or 19 ounces.*

*Differs from the last, of which it is probably only the younger bird, in having the cheeks, throat, and all underneath white.*

233. *U. Grylle.* Black, wing-coverts white: legs red.

*Black Guillemot. Lewin t. 222. Walcot t. 99.*

*Length 14 inches : extent 22 : weight 14 ounces.*

*Bill black : mouth yellow-red within : wings with a white spot, which is spotted in the young bird; the secondary quills tipped with white.*

#### 50. COLYMBUS. Diver.

234. *C. glacialis.* Head and neck violet-black: back and wings spotted with white: throat and hind-part of the neck with a white crescent.

*Northern Diver. Br. Zool. t. 84. Lewin t. 227. Donovan. t. 58.*

*Length 3 feet 5 : extent 4 feet 8 : weight 12-14 pounds.*

*Bill dusky, 4 inches and a half long : iris purplish : head and neck glossy changeable black : sides of the breast with black lines : back scapulars and wing-coverts black with white oblong or round spots : breast and belly white : quills and tail black : legs black.*

235. *C. Immer.* Above blackish-brown with paler undulations, beneath entirely white.

*Imber Diver. Br. Zool. t. 84. Lewin. t. 228. Donovan. t. 99.*

*Length 2 feet 7 : extent 4 feet 9 : larger than a goose.*

*Bill 4 inches long, dark olive : iris hazel : head and nape brown : front, sides of the neck and cheeks speckled with brown : back and wings dark tawny-brown with paler undulate lines : legs dusky.*

236. *C. stellatus.* Dusky with oval white spots, beneath white: head and forepart of the neck speckled with grey: feathers at the sides fringed with greyish-white.

*Speckled Diver, Loon. Lewin t. 229. Walcot t. 101.*

*Length 27 inches : extent 3 feet 9 : weight near 4 pounds.*

*Bill pale horn-colour : iris yellowish-brown : back part of the neck plain dusky-brown : quills and tail dusky : sides with dusky streaks : legs dusky, greenish-grey inside.*

237. *C. arcticus.* Head grey: fore-part of the neck violet-black with a short white band, the sides with black and white lines: scapulars and coverts with white spots.

*Black-throated Diver. Br. Zool. t. 85. Lewin t. 230.*

*Length* 2 feet : *extent* 3 feet 5 : *weight* near 3 pounds.

*Bill* black : *iris* hazel : *back*, *quills* and *tail* black : *scapulars* with square white spots, *wing-coverts* with round ones : *breast* and *belly* white : *legs* dusky, reddish within.

238. *C. septentrionalis*. Above dusky-brown with white lines and specks, beneath white : neck with a chesnut-red patch on the fore-part.

Red-throated Diver. *Br. Zool. t. 85. Lewin t. 231. Donovan t. 78.*

*Length* 2 feet 5 : *extent* 3 feet 9 : *weight* about 3 pounds.

*Bill* dark horn-colour : *iris* hazel : *head* grey : *neck* above with whitish lines, on the lower part beneath with dusky lines : *quills* and *tail* dusky : *sides* and *thighs* with dusky streaks : *vent* dusky : *legs* dusky, lighter within.

## 51. STERNA. Tern.

239. *St. Boysii*. White, crown black : front with white spots : back and wings lead-grey : quills blackish, with white shafts.

2. Body variegated : ears with a black spot.

Sandwich Tern. *Lewin t. 204. Donovan t. 120. Walcot t. 120.*

*Bill* black : *iris* dusky : *front* sometimes wholly black : *primary quills* tipped with black, the inner-webs white towards the base : *tail* long, forked, the outer-feathers grey on the outer-webs : *legs* dusky with a reddish tinge.

240. *St. Hirundo*. Bill and legs red : crown and front black : tail forked, the outmost feathers black on the outer webs.

Common Tern. *Br. Zool. t. 90. Lewin t. 205. Donovan t. 23.*

*Length* 14 inches : *extent* 30 : *weight* about 4 ounces.

*Bill* tipped with black : *iris* hazel : lower part of the head and all beneath white : *back* and *wings* lead-grey : *tail* white : *claws* black.

241. *St. minuta*. Bill and legs yellowish-red : crown black, front white : from the bill to the eyes a black stripe : tail forked, the outmost feathers all white.

Lesser Tern. *Br. Zool. t. 90. Lewin t. 206. Donovan t. 96.*

*Length* 8 inches and a half : *extent* near 20 : *weight* 2 ounces.

*Bill* tipped with black : *iris* dusky : *back* and *wings* grey : lower-part of the head and all beneath white : *tail* white.

242. *St. fissipes*. Black, back and wings grey : vent white : tail slightly forked.

Black Tern. *Lewin t. 207. Donovan t. 74. Walcot t. 122.*

*Length* 10 inches : *extent* 24 inches : *weight* near 3 ounces.

*Bill* black : *iris* dusky : *front* and *sides* of the *head* sometimes mottled with white : *tail* grey : *legs* black.

## 52. LARUS. Gull.

A. *Nostrils covered with a cere.*

243. *L. Catarractes*. Dark-brown, beneath ferruginous-grey : quills and tail white at the base : tail nearly even.

Skua Gull. *Lewin t. 212. Walcot t. 117.*

*Length* 2 feet : *extent* 4 feet 6 : *weight* 3 pounds.

*Bill* black, much curved at the point ; the upper mandible covered half way down with a cere : *plumage* above with dull ferruginous margins : *front* and *chin* with a grey tinge : *legs* black ; *hind-toe* short.

244. *L. crepidatus*. Variegated olive-brown and yellowish, beneath paler: shafts and tips of the quills white: fore-part of the toes and webs black.

Black-toed Gull. *Br. Zool. t. 86. Lewin t. 217. Walcot t. 118.*

Length 15 inches: extent 39 inches: weight near 11 ounces.

Bill dusky: iris dark brown: head and neck with longitudinal brown and whitish lines: plumage above edged with yellowish or whitish, beneath crossed with the same: outer webs of the quills black, lower-part of the inner white: tail black with yellowish bars, tipped with white: legs and part of the toes lead-colour.

245. *L. parasiticus*. Head and chin black: back and wings blackish-lead-colour: neck, breast and belly white: 2 middle tail-feathers very long.

Arctic Gull. *Brit. Zool. t. 87. Lewin t. 208. Walc. t. 116.*

Length 21 inches: weight 8 or 9 ounces.

Bill lead-colour at the base, black at the tip: front and temples white: neck with a reddish tinge behind: breast crossed with a dark bar: base of the quills white on the inner-webs: 2 middle tail-feathers 4 inches longer than the rest: legs black.

Young bird entirely brown, paler beneath.

#### B. Nostrils without cere.

246. *L. ridibundus*. Whitish, head black: bill and legs purplish-red.

Black-headed Gull. *Lewin t. 213. Walcot t. 115. Fl. Scot. t. 5.*

2. White, back grey: behind the ears a brown spot.

*Larus cinerarius. Linn. fyst.*

3. Whitish, head brown spotted with white: back grey: 10 middle tail-feathers with a black band.

*Larus erythropterus. Gmel.*

4. Above brown, beneath white: wings variegated brown and grey.

*Sterna Obscura. Lath. Synops. Index ornithol.*

Length 15 inches: extent 37: weight about 10 ounces.

Bill slender: iris hazel: eyelids with a white spot on each side: chin black: back and wings more or less ash colour: quills edged and tipped with black.

247. *L. atricilla*. White, head blackish: bill red: legs black.

Laughing Gull. *Will. Angl. t. 67. Montague Ornith. Dict.*

Length 18 inches: larger than *L. ridibundus*.

Much resembles the last, but the legs are black, and the head larger, with a stronger bill.

248. *L. marinus*. White, back and wings dusky lead-colour: primary quills black, with broad white tips.

Black-backed Gull. *Lewin t. 209. Walcot t. 212.*

2. Back and wings grey: primary quills black towards the tip.

3. Mixed brown grey and white: tail with a black bar near the end. Young bird.

Wagel Gull. *Br. Zool. t. 88. Lewin t. 210.*

Length 28 inches: extent 5 feet 8: weight near 5 pounds.

Bill strong, thick, yellow with an orange spot on the lower mandible: iris yellow: eyelids orange: head and neck white: secondary quills more or less tipped with white: legs flesh-colour.

249. *L. fuscus*. White, back and wings cinereous: primary quills dusky, black towards the end, with a white spot near the tip: legs yellow-orange.

Herring Gull. *Br. Zool. t. 88. Walcot t. 113.*

Length 23 inches: extent 52: weight 33 ounces.

Bill yellow, with an orange or black spot on the lower mandible: iris yellow: eyelids red: head and neck white: quills dusky.

The young are mottled as in the last.

250. *L. canus*. White, back and wings grey: first quills black at the extremity, the fourth and fifth with a black spot at the tip, the outmost black on the outer-web.

Common Gull, Sea Mew. *Br. Zool. t. 89. Lewin t. 216.*

2. Grey, snowy beneath: head white with brown spots: neck brown above: wings variegated: tail white with a black band.

Winter Mew. *Br. Zool. t. 86. Lewin t. 211. Donovan t. 77.*

Length 18 inches: extent 3 feet 8: weight about a pound.

Bill pale yellow or greenish, with a dusky point: iris hazel: head and neck white, with more or less a tinge of grey: wing-coverts tipped with white: behind the eyes sometimes a dark grey spot: legs dirty-white with a yellowish tinge.

A variety, or probably a new species, has been taken and described by L. W. Dillwyn, differing in having the bill of equal length, but not half so stout: neck the same breadth: saddle internally twice as broad: and the gizzard twice as large.

251. *L. tridactylus*. White, back and wings grey: outmost quills black on the outer web: tail white: back a mere knob.

Kittiwake *Br. Zool. t. 89. Lewin t. 215. Walcott t. 108.*

2. Neck with a dusky spot or two: tail tipped with black, except the outmost feathers.

Tarrock. *Lewin t. 214. Walcot. t. 109.*

Length 15 inches: extent 3 feet: weight 7 or 8 ounces.

Bill greenish-yellow or dusky: iris dusky: mouth orange on the inside: head and neck white: secondary quills tipped with black: legs dusky.

### 53. PROCELLARIA. Petrel.

252. *P. glacialis*. White, back and wings grey: quills dusky: bill and legs yellowish.

Fulmar Petrel. *Lewin t. 218. Walcot t. 89.*

About the size of *Larus canus*. Bill much hooked at the end: nostrils placed both in one cylinder: back-toe a mere spur.

253. *P. puffinus*. Above black, beneath white: legs dull rufous.

Shearwater Petrel. *Lewin t. 219. Walcot. t. 90.*

Length 15 inches: extent 30: weight 17 ounces.

Bill yellowish, with a dusky point: head and upper-part of the body black: chin to the vent white: legs pale before, rufous behind.

254. *P. pelagica*. Body black, rump and vent white.

Stormy Petrel. *Br. Zool. t. 91. Lewin t. 220. Walc. t. 91.*

Length 6 inches: extent 13: size of the Swallow.

Bill and legs black: body beneath rusty-brown: secondary quills some of them white at the ends: 3 outer tail-feathers whitish at the base.

### 54. MERGUS. Merganser.

255. *M. Merganser*. Slightly crested, white: head, upper part of the neck and back, and quills glossy-black: tail grey.

Goosander. *Br. Zool. t. 92. Lewin t. 232. Donovan t. 49.*

Length 2 feet 4: extent 3 feet: weight 4 pounds.

Bill and legs red: iris reddish-orange: head and upper-part of the



neck glossy greenish-black : lower-part of the neck, wing-coverts, and parts underneath white : sides with dusky undulate lines : lower-part of the back and rump grey.

256. *M. Castor*. Crested, grey : head and upper-part of the neck ferruginous : chin, ends of the middle quill-feathers and belly white.

Dun Diver, *Br. Zool. t. 92. Lewin t. 233. Donovan t. 65.*

Length 27 inches : extent 35 : weight near 3 pounds.

Bill orange, with a black nail : iris purplish : chin and throat whitish : breast and lower-part of the neck before grey-buff : greater quills black : legs orange.

257. *M. Serrator*. Crest of the male pendent : head and upper parts of the neck and back glossy-black : neck with a white collar : breast ferruginous mixed with black : rump with grey and brown streaks.

Red-breasted Merganser, *Br. Zool. t. 93. Lewin t. 234.*

Length 21 inches : extent 28 : weight near 2 pounds.

Bill and legs dull orange : iris red : lower-part of the neck white forming a collar : lower-part of the back, tail-coverts and vent grey with dusky undulate lines : scapulars and wing-coverts mixed black and white : belly white. Female hardly crested : the head and upper-part of the neck dull rufous : back and scapulars dark grey.

258. *M. Albellus*. Crest pendent : hind-head, upper-part of the back and temples black : body white : wings black and white. Female, head hardly crested, tawny-grey : across the eyes a black band, under which is a white spot.

Smew, White Nun, *Lewin t. 235. Walcot t. 82.*

2. Head and upper-part of the neck ferruginous : cheeks without the oval black spot : above grey-brown, beneath and chin white : wings with a white spot before and behind.

Minute Merganser, *Lewin t. 236. Donovan t. 52.*

Length 18 inches : extent 26 : weight 2 pounds.

Bill black : nape under the crest with an oblong black mark : on the lower-part of the neck 2 black stripes pointing forwards : tail grey tipped with black : legs lead-colour. Female, bill lead-colour, breast clouded with grey, back dusky mixed with grey.

### 55. ANAS. Duck.

259. *A. Cygnus*. Bill semicylindrical, black : cere yellow : body pure white.

Wild Swan, *Br. Zool. fol. 149. t. addend. Edw. t. 150. Walcot t. 55.*

Length 4 feet 10 : extent 7 feet 3 : weight 13-16 pounds,

Bill between 4 and 5 inches long, black at the end, yellow towards the base, and bare of feathers up to the eyes : iris yellow : plumage with a few grey or rusty marks in the young birds : legs black : ribs only 11.

260. *A. Olor*. Bill red, black at the nail and sides, with a black fleshy tubercle at the base : body pure white.

Tame Swan, *Br. Zool. fol. 149. t. add. Walcot t. 56. Edw. t. 150.*

Much larger than the last : plumage cinereous till the second year : legs dusky : ribs 12.

261. *A. ruficollis*. Bill dusky with a black nail : above black, beneath white : neck rufous, with a longitudinal white stripe each side : before the eyes an oval white spot.

Red-breasted Goose, *Pall. spic. vi. p. 21. tab. 4.*

Length 21 inches: weight about 3 pounds.

*Iris* yellow: *crown* black: *front* and *cheeks* mixed with white; between the bill and *eyes* an oval white spot: over which is a black line: *chin* and *throat* black: *breast* with a black and white band: *sides* with black stripes: *tail-coverts* white: *legs* black.

262. *A. Anser*. Bill semicylindrical, flesh-colour with a white nail: body above grey, beneath paler mixed with grey: neck striate longitudinally.

Grey-lag Goose. *Walcot* t. 61. *Albin* i. t. 90.

Length 2 feet 9: extent 5 feet: weight 8 or 9 pounds.

Head and neck grey with an ochraceous mixture: *scapulars* edged with white: *wings* various shades of grey with paler margins: *quills* more or less dusky at the ends: *rump* and *vent* white: *wings* without the coloured spot: *tail* tip with white: *legs* flesh-colour.

Varies much in its colours by domestication.

263. *A. Albifrons*. Bill flesh-colour, with a white nail: body grey mixed with brown and white: front white.

White-fronted Goose. *Br. Zool.* t. 94. 1. *Donov* t. 102. *Walc.* t. 64.

Length 2 feet 4 - extent 4 feet 6: weight 4 to 5 pounds.

Bill with an orange spot at the base: *iris* dusky: body above brown edged with grey: *breast* and *belly* with large black and white patches: *quills* dusky, the primaries grey on the outer-webs: *rump* and *vent* white: *tail* dusky, edged with white: *legs* orange-yellow.

264. *A. Segetum*. Bill pale red with a blackish nail: body grey-brown, beneath paler: wings grey, the larger coverts and secondary quills tip with white.

Bean Goose. *Br. Zool.* t. 94. 2. *Walcot* t. 65.

Length 2 feet 7: extent 4 feet 11: weight 5-7 pounds.

Bill dusky at the base, much compressed at the end: *iris* hazel: front mixed with white, behind which the feathers are dusky: greater *quills* blackish, with grey outer-webs, secondaries grey with black outer margins: *tail* edged with white: *legs* dull orange.

265. *A. cythrops*. Bill black, with a flesh-colour spot each side: body grey, undulate above with black and white: neck black: face and belly white.

Bernacle Goose. *Hayes* t. 24. *Walcot* t. 62.

Length 25 inches: extent 4 feet 5: weight 5 pounds.

Front, chin, and cheeks white: from the bill to the eyes a black line: crown, neck and upper-part of the back black: upper tail-coverts white: rump and tail black, the latter white at the sides: legs dusky.

266. *A. Bernicla*. Bill black: head, neck, and breast black: a white crescent each side the neck.

Brent Goose. *Albin* i. t. 93. *Hayes* t. 25. *Walcot* t. 63.

Length 28 inches: extent 4 feet: weight 2 pounds and a half.

Back, *scapulars*, and coverts brownish-black, beneath paler: tail-coverts and vent white: sides with white lines: tail black: legs black. The young bird wants the white crescent on the neck.

267. *A. mollissima*. Bill black, cylindrical: cere bifid and wrinkled on the hind-part.

Eider Duck. *Br. Zool.* t. 95. *Edw.* t. 98. *Walcot* t. 66.

Length 1 foot 10: nearly twice the size of the common duck.

Feathers of the front and cheeks proceeding far into the base of the bill, and forming two sharp angles: front silvery black: from the bill across the eyes a broad black stripe: beneath the hinder ends of which is a pea-green patch: crown, cheeks, neck, back and wings white: quills black: breast, belly and tail black: legs dull green.

The young have the neck and breast spotted black and white.

Female, reddish-brown barred with black: head and upper part of the neck with dusky longitudinal streaks: wings with 2 white bands: belly deep brown with obscure black marks: tail dusky.

268. *A. spectabilis*. Bill orange, with a flat compressed gibbosity at the base, divided by a feathery ridge: head pale ash-colour.

King Duck. *Arct. Zool.* ii. n. 481. *Edw.* t. 154.

Length nearly 2 feet. Front pea-green, passing backwards each side the neck, and including half the eye: chin, throat, and breast dirty white, with a black mark diverging each side on the former: back, belly, and vent black: wings dusky with a white patch: quills black, with ferruginous shafts, a white spot on each side the outer-ones: tail wedge-form; black: legs dusky.

Female brown, the middle of each feather black. Young bird without the protuberance on the bill.

269. *A. nigra*. Bill gibbous at the base, without the nail at the end, black with a line of orange halfway down the middle: body entirely black.

Scoter. *Walcot* i. t. 59. *Will. Angl.* p. 336. t. 74.

Length 22 inches: extent 34: weight 2 pounds 9 ounces.

Bill yellow in the middle: head and neck glossy purplish-black: tail wedge-form, of 16 pointed feathers: legs black.

Female without the gibbosity on the bill, brown: chin and throat greyish: belly varied with whitish.

270. *A. fusca*. Bill gibbous at the base, yellow, black at the sides, with a reddish nail: body blackish: under the eyes a white mark: wings with a white band.

Velvet Duck. *Br. Zool.* t. 96. *Walcot* t. 58.

Length 20 inches: larger than the common drake.

Bill broad: head black with a tinge of green: plumage inclining to brown beneath: under the eyes a white patch passing backwards: legs red. Female brown, without the protuberance on the bill.

271. *A. histrionica*. Dusky-brown, varied with white and blue: over the eyes a ferruginous stripe: ears and line down the sides of the neck white: neck and breast crossed with a white band. Female, grey brown: ears white: primary quills blackish.

Harlequin Duck. *Sowerby Brit. miscel.* 1. p. 11. t. 6.

Length 17 inches: extent 26: weight near 19 ounces.

Bill blackish, with a white patch from its base to the eyes: crown black: neck black, with a white spot above the white line: breast bluish-grey, with a white collar spotted and bounded with black, beneath a white band: sides dull rufous: wings with a blue spot bounded forwards by a transverse white line: legs bluish-black.

Female less, front and cheeks white: breast and belly barred with pale rufous and whitish: quills and tail dusky.

272. *A. Boschas*. Bill straight, yellowish-green: head and neck glossy-green, with a white collar beneath: breast purplish-chesnut: wing-spot purple-blue, above which is a black and a white band: middle tail-feathers, of the male, recurved.

Wild Duck, Mallard *Br. Zool.* t. 97. *Donov.* t. 124. *Walcot* t. 77.

Length 23 inches: extent 35: weight 2 pounds and a half.

Neck with a white collar reaching more than half way round: back brown: sides and scapulars white, with undulate brown lines: belly pale grey with brown undulate lines: 4 middle tail-feathers glossy black, curved upwards, the rest grey-brown edged with white.

*Female*, reddish-brown spotted with black, and the middle tail-feathers not recurved. It varies much in colours by domestication.

273. *A. Marila*. Bill bluish: head and neck black, with a green gloss: breast black: back and wings pale grey, with minute undulate black lines: wing-spot and belly white.

Scaup Duck. *Br. Zool. t. 100. Walcot i. t. 60.*

Length about 21 inches: weight from 30 to 35 ounces.

Bill with a black nail: iris golden: head and neck sometimes varying in colours: lower-part of the back, rump, tail and vent black: quills dusky: legs lead-colour.

274. *A. frænata*. Bill black, with a white ring at the base: body ferruginous-brown: wing-spot and belly white.

White-faced Duck. *Sowerby Brit. miscel. 2. p. 5. t. 62.*

Size of the last. Head brown: neck ferruginous: sides with small white spots: primary quills black: tail rounded: legs black.

275. *A. Tadorna*. Bill turned upwards, red, with a knob at the base: head greenish-black: breast with an orange-bay band crossed by a brownish stripe running down the belly: wing-spot glossy copper-green.

Sheldrake. *Donovan t. 71. Albin t. 94. Walcot t. 57.*

Length 2 feet: breadth 3 feet 6: weight 2 pounds 10 ounces

Bill with a black nail: iris dusky: lower-part of the neck white: middle of the back white: shoulders and some of the scapulars black: first quills black, the next violet, inner-ones ferruginous, the last white: belly white: tail white, more or less tipped with black: legs red.

276. *A. clypeata*. Bill black, dilated and rounded at the point, with an incurved nail: head glossy, violet-green: breast white: belly chesnut: wing-coverts pale blue.

Shoveler. *Albin i. t. 97. 98. Hayes t. 27. Walcot t. 67.*

Length 21 inches: extent 2 feet 7: weight 22 ounces.

Bill much spread at the end: iris yellow: breast and scapulars white: back brown: greater wing-coverts brown, tipped with blue: wing-spot green: vent black: outer tail-feathers white, the rest edged with white: legs orange-red.

277. *A. rubens*. Bill brownish-yellow, broad at the end: body brown: throat and breast reddish-brown: wing-spot purple, edged with white: tail short, whitish.

Red-breasted Shoveler. *Br. Zool. ii. p. 597. n. 281.*

Size of the common Duck. Iris yellow: back brown, paler towards the sides: vent bright brown, with darker spots: legs reddish-brown. *Female*, with the wing-spot blue.

278. *A. streptera*. Bill black: head reddish-brown spotted with black: wing-spot black, with a rufous margin on the fore-part, and a white one behind.

Gadwall. *Walcot t. 68. Will. Angl. p. 374. t. 72.*

Length 19 inches: rather less than *A. Penelope*.

Sides of the head, throat, and fore-part of the neck pale rufous with brown spots: lower-part of the neck, upper-part of the back and breast brown with curved white lines: lower-part of the back brown: rump and vent black: belly and sides with whitish and grey-brown lines: tail ash-colour edged with white: legs orange.



*Female*, breast reddish-brown with black spots, without the curved lines.

279. *A. Penelope*. Bill lead-colour, tip with black: head bay spotted with black; front yellowish-white: back with grey and blackish undulate lines: vent black.

Wigeon. *Walcot t. 71. Will. Angl. p. 375. t. 72.*

Length 20 inches: extent 27: weight near 24 ounces.

Breast purplish, with often black spots: belly white: wing-spot blue-green, black before and behind: wing-coverts brown, sometimes varied with white: quills dusky tip with black: 2 middle tail-feathers longer than the rest, dusky; the rest grey edged with rufous-brown: legs dusky.

*Female*, brown with darker spots, breast paler.

280. *A. glacialis*. Bill lead-colour, tip with black: head slightly crested, green, with a ferruginous spot before and behind the eyes: back dark-brown with black waves: wing-spot green, edged with white.

Bimaculated Duck. *Br. Zool. ii. n. 287. t. 100. f. 2.*

Length 20 inches: extent 25 and a half.

Crown green-brown, with a brown streak on the nape: throat deep purple: head bright green, streaked down the neck: breast ferruginous spotted with black: belly dusky, speckled: wing-coverts grey, the lower-ones with rusty streaks: tail-coverts changeable green: 2 middle tail-feathers black, the rest brown edged with white: legs yellow, with dusky webs.

281. *A. ferina*. Bill blue, tip with black: body with grey and black undulate lines: head chesnut: pectoral band, rump, and vent black.

Pochard. *Walcot t. 74. Albin ii. t. 98. Will. Angl. t. 72.*

Length 19 inches: extent 30: weight 28 ounces.

Breast with a broad black band meeting at the back: quills dusky: belly white, with dusky lines: tail dusky, mixed with grey: legs lead-colour.

282. *A. acuta*. Bill black, bluish on the sides: head rufous-brown, with a longitudinal white stripe each side from the hind-part: back with grey and black undulate lines: 2 middle tail-feathers very long, pointed, black.

Pintail Duck. *Walcot t. 72. Albin t. 94. 95. Will. Angl. t. 75.*

Length 28 inches: extent 3 feet 2: weight 24 ounces.

Head with a purple tinge behind the ears: nape with a purple gloss: neck white on the lower-part before: belly white: wings brown: wing-spot violet-green, ferruginous before, white behind: tail, except the middle feathers, dusky edged with white: vent black: legs lead-colour. *Female*, head ferruginous with dusky streaks, wing-coverts brownish edged with grey.

283. *A. glacialis*. Bill black, orange in the middle: body black, beneath white: front and sides of the head reddish-grey: 2 middle tail-feathers very long, narrow, pointed. *Young bird*, body white: temples, breast, back and wings black. *Female*, blackish varied with rufous and grey: back black: collar and lower-part of the belly white.

Long-tailed Duck. *Br. Zool. t. 98. 1. Denov t. 111. Walc. t. 73.*

Length 22 inches: extent 29: size of the Wigeon.

Iris red: nape and neck before and behind white, the latter with

a longitudinal dusky bar down the sides: *scapulars* white, long, pointed: *wings* black chefnut: 4 middle *tail-feathers* black, 2 of them very long, the rest white: *legs* dull red.

284. *A. ferruginea*. Bill pale blue, dilated: head, neck, and body above reddish-brown: throat, breast, and belly paler.

Ferruginous Duck. *Br. Zool.* ii. n. 285. t. 99.  
Weight 20 ounces: *legs* pale blue, with black webs.

285. *A. Clangula*. Bill black: body varied black and white: head tumid, black with a green and violet gloss: at the corners of the mouth a white spot.

Golden eye. *Walcot* t. 69. *Albin* t. 96. *Will. Angl.* t. 73.

Length 18 inches: extent 2 feet 6: weight 2 pounds.

*Iris* bright yellow: *back*, *rump*, and upper *tail-coverts* black: *scapulars* black and white: *wings* with 2 white patches: *quills* black, *secondaries* white: *breast* and *belly* white: *tail* black: *legs* orange. *Female*, head rusty-brown, neck with a grey ring, breast mixed dusky and grey, *legs* yellowish with dusky webs.

286. *A. Glaucion*. Bill yellowish-brown: body blackish with white lines: head dull ferruginous: neck with a white collar, and a grey one beneath it: wings with a white line.

Morillon. *Walc.* t. 70. *Brit. Zool.* ii. p. 588. n. 277.

Less than the last, of which it may be only the young bird.

*Iris* golden: *back* and *coverts* dusky with a few white lines: greater *coverts* dusky with a few large white spots: primary *quills* black, *secondaries* white: *breast* and *belly* white: *sides* black: *tail* dusky: *legs* yellow.

287. *A. Fuligula*. Bill blue-grey tipped with black: head with a pendent crest: body black: belly and wing-spot white.

Tufted Duck. *Albin* i. t. 95. *Hayes* t. 26. *Walcot* t. 78.

Length 17 inches: extent 2 feet 4: weight 25 ounces.

Bill broad: *iris* yellow: head and crest with a violet and green gloss: *scapulars* with minute grey specks, *vent* black: *tail* black: *legs* dusky, with black webs: *Female*, without the crest, and the plumage inclining to brown.

288. *A. Nyrca*. Bill bluish tipped with black: head, throat, breast, and flanks chesnut: back and wings blackish-olive: belly whitish: vent and wing-spot white: rump black.

Olive tufted Duck. *Sowerby Brit. Miscel.* 1. p. 43. t. 21.

Length 16 inches. *Iris* whitish hazel: belly varied whitish and brown: head hardly crested. *Female*, without crest, back inclining to rufous, dirty reddish where the male is chesnut, belly clouded.

289. *A. Querquedula*. Bill black: over the eyes a broad white stripe: breast with semicircular brown and black lines: wing-spot green.

Garganey. *Br. Zool.* t. 101. *Walc.* t. 75. *Donovan* t. 21.

Length 17 inches: extent 28: weight

Crown brown with dusky lines: chin black: cheeks and upper-part of the neck purplish, with white longitudinal lines: belly dirty-white, with a few dusky streaks: wing-coverts grey, the larger-ones tipped with white: *scapulars* black white and grey: wing-spot white above and beneath: *tail* dusky: *legs* lead-colour.

*Female*, without the green spot on the wings, above brown with dusky streaks.

290. *A. Crecca*. Bill black : above and beneath the eyes a white line : breast with roundish black spots : wing-spot green.

Teal. *Walcot t. 76. Hayes t. 29. Albin i. t. 100.*

2. Bill and legs grey : over the eyes a white line : wing-spot variously coloured : belly with black spots.

*Anas Circia. Linn. syst. Albin. ii. t. 103. 104.*

*Length 15 inches : extent 23 : weight 12 ounces.*

*Iris hazel : head and neck reddish-bay : behind the eyes a broad green patch : body above with black and white undulate lines : belly white : vent black : wing-spot obliquely edged above with black, beneath with white : quills dusky, secondaries black : tail brown : legs dusky. Female, variegated whitish and brown, vent white, wing-spot green.*

## 56. PELECANUS. *Pelecan*.

291. *P. Carbo*. Bill toothless, black : head slightly crested : chin dirty-white : body black : tail rounded, of 14 feathers.

Corvorant. *Walcot t. 92. Albin t. 81. Will. Angl. t. 63.*

*Length 3 feet 4 : extent nearly 5 : weight near 8 pounds.*

*Bill 5 inches long, hooked, bald and yellow round the base : iris green : head and neck generally with white longitudinal lines : back glossy greenish-black, the feathers with deeper margins : chin with a patch of white : thighs with sometimes a white spot : legs black.*

292. *P. Graculus*. Bill toothless, dusky : body glossy greenish-black, black-brown beneath : tail rounded, of 12 feathers.

Shag. *Walcot t. 93. Will. Angl. t. 63.*

*Length 29 inches : extent 3 feet 10 : weight about 4 pounds.*

*Bill near 4 inches long, bald and yellow with black specks on the chin : body above black with a purple and green gloss, margined with deep black : legs dusky : middle-claw ferrate.*

293. *P. cristatus*. Bill toothless, blackish : head crested : body dark glossy-green with purplish-black edges, beneath dusky.

Crested Shag. *Brit. Zool. t. 102.*

Much resembles the last, except in having the feathers at the sides of the head elongated into a crest, of which it may be only the full grown bird or other sex : tail of 12 feathers : legs dusky.

294. *P. Bassanus*. Bill serrate, yellowish-white : face bald, blue : body dirty-white : primary quills black.

Gannet, Soland Goose. *Br. Zool. t. 103. Walcot t. 94.*

*Length 3 feet : extent 6 feet : weight about 7 pounds.*

*Bill 6 inches long, nearly straight : iris pale yellow : round the eyes a naked blue patch : chin bald, dusky : crown pale buff : lesser wing-coverts black : tail of 12 feathers : legs black, greenish before, the middle-claw ferrate. The young birds are dusky mixed with white.*

## CLASS III. AMPHIBIA.

Animals highly tenacious of life, and having the power of respiring both on land and under water.

## ORDER I. REPTILIA.

*Furnished with feet.*

1. TESTUDO. *Body* tailed, covered above and beneath with a bony horny or coriaceous shell, or with scales above: *upper-mandible* closing over the lower, like the lid of a box.
2. LACERTA. *Body* 4-footed, slender, tapering to a tail.
3. RANA. *Body* 4-footed, without tail or any covering but the skin: hind-legs longer than the fore.

## ORDER II. SERPENTES.

*Without feet.*

4. COLUBER. With undivided *plates* on the belly, and divided *scales* below the tail.
5. ANGUIS. With divided *scales* on the belly, and below the tail.

ORDER I. REPTILIA. *Reptiles.*1. TESTUDO. *Tortoise.*

1. *T. coriacea*. Feet fin-like: body above brown, beneath paler: shell coriaceous, with 5 longitudinal tubercled ribs.

Coriaceous Turtle. *Br. Zool.* iii. t. 1. *Shaw Zool.* iii. t. 21.

*Body* growing to 6 or 7 feet long, 3 or more wide, and to the weight of 8 hundred pounds: *upper-jaw* forked, and receiving the extremity of the lower-one: *fore-fins* much longer than the hind-ones, covered with a tough leathery skin: *tail* short, pointed.

2. *T. imbricata*. Feet fin-like: body ovate, with 13 imbricate plates in the disk, and serrate round the margins.

Hawks-bill Turtle. *Shaw Zool.* t. 26. *Phil. Trans.* n. 221.

On the Orkney Isles; and in the Spring of 1774 was taken in the Severn and placed in the fish-ponds of the Author's father, where it lived till the winter.

*Body* growing to a large size, roundish-ovate, slightly heart-shaped, slightly carinate down the back: *head* small, prominent, with the upper-bill curved over the lower: *legs* with 2 claws on each: *plates* of the disk rather square, semitransparent, variegated; of the circumference 25, pointed and incumbent on each other in a serrate manner: *tail* a mere notch.



2. LACERTA. *Lizard.*

A. *Scaly, with round whorled tails: feet all 5-toed, with nails.*

3. *L. agilis.* Above light brown with longitudinal stripes of black and white spots, beneath yellow or dirty white.

Scaly Lizard. *Br. Zool.* iii. t. 2. *Shaw Zool.* iii. t. 72.

*Length* 6 inches and a half. *Back* with a line of irregular black spots down the middle, next a stripe spotted alternately with black and white, then a brown stripe with a line of black and white spots: *tail* beneath dirty white, often mottled with black: *legs* spotted above with white on the sides.

4. *L. Œdura.* Above dark-brown with longitudinal stripes of black and yellow spots, beneath yellow or dirty-white spotted with black: sides mottled black and white.

Swelled-tail Lizard. *Sheppard Linn. Trans.* vii. p. 50.

*Length* 4 inches and a half. *Head* above spotted with black, beneath mottled with black: *back* with a black stripe down the middle, then a brown one each side with a line of black spots, next a stripe of alternate yellow and black spots, beneath this a brownish black stripe with a line of yellow spots: *tail* swelling-out a little below the base, ash-colour with a few long black marks at the end, at the base underneath a large red or yellowish mark: *legs* black and white on the sides.

5. *L. anguiformis.* Above light-brown with black-brown and yellow longitudinal stripes, the lower-one each side with a few yellow spots, beneath yellowish-white with a few black spots.

Viperine Lizard. *Sheppard Linn. Trans.* vii. p. 51.

*Length* 7 inches or more. *Head* with 4 dark spots: *back* with a black line down the middle, each side this a dark brown one, next a yellow stripe, then a dark brown one with a few yellow spots: *tail* barred with black at the end: *legs* dark brown spotted with black.

B. *Without scales: tail compressed sideways: forefeet 4-toed, without nails.* Newts.

6. *L. vulgaris.* Above yellow-brown with minute darker spots and longitudinal deep brown stripes, beneath red with a few black dots.

Common Newt. *Br. Zool.* iii. t. 2. *Shaw Zool.* iii. t. 83.

*Length* 4 inches: upper *eyelids* dark brown, lower dull yellow: *tail* ribbed at the sides with dark brown.

7. *L. palustris.* Above warty and black-brown spotted with black, beneath orange bordered with large black spots: sides light brown with white spots.

Warty Newt. *Br. Zool.* iii. t. 3. *Shaw Zool.* iii. t. 83.

*Length* 6 inches. *Head* black above, beneath light brown with white spots or warts: *tail* pointed, with an obsolete white mark on the sides.

8. *L. maculata.* Above greenish-brown with 2 longitudinal brown lines, beneath bright red with dusky spots: sides with lines of brownish-black spots.

Spotted Newt. *Sheppard Linn. Trans.* vii. p. 53.

*Length* 4 inches. *Head* with 2 lines of black dots above, beneath yellowish-white with dark brown spots: upper *eyelids* prominent:

*iris* orange, pupil black : *nose* with a slight longitudinal indenture, in which is a yellowish mark : *tail* pointed, the upper-edge black, under-edge orange : *legs* greenish-brown.

### 3. RANA. Frog.

9. *R. Bufo*. Lurid-brown with rufous-brown tubercles, beneath paler.

Common Toad. *Shaw Zool.* iii. t. 40.

*Body* tubercled, sometimes obscure olive-brown above, paler and irregularly spotted beneath.

10. *R. Rubetra*. Body tubercled, above dirty yellow clouded with brown, beneath paler with black spots : back with a yellow line.

Natter Jack. *Br. Zool.* iii. p. 19. n. 5.

*Body* 2 inches and a quarter long, one and a quarter broad : *fore-feet* 4-toed : *hind-feet* 5-toed, a little webbed.

11. *R. temporaria*. Yellowish-brown spotted with black, beneath the eyes an elongated brown patch.

Common Frog. *Shaw Zool.* iii. t. 28, 29, 30.

*Body* sometimes dull ferruginous, beneath pale greenish-yellow obscurely spotted and variegated : *back* flattish and more or less angular.

12. *R. esculenta*. Olive-green spotted with black : back with 3 longitudinal yellowish lines : belly whitish.

Esculent Frog. *Shaw Zool.* iii. t. 31.

*Body* larger than the last, marked with roundish black patches, beneath whitish-green with brown marks : *limbs* transversely barred with black : from the tip of the nose down the *back* are 3 pale yellow stripes, the middle-one slightly depressed, the others strongly elevated : *hind-feet* palmate.

## ORDER II. SERPENTES. SERPENTS.

### 4. COLUBER. Viper, Snake.

13. *C. Berus*. Grey-brown, with a large lobed spot on the head : down the back a connected chain of black spots.

Common Viper. *Br. Zool.* iii. t. 4. *Shaw Zool.* iii. t. 101.

*Body* from a foot and a half to 3 feet long : sometimes tawny-brown or blackish : *iris* orange, pupil black : *lips* variegated black and grey : *sides* with a row of dusky spots : *belly* blackish with a bluish gloss, spotted with black : *scales* carinate : *plates* of the belly 146, *scales* below the tail 39.

14. *C. caeruleus*. Light-brown with an angular dark-brown spot on the head : down the back a string of dark-brown rhomboidal spots : belly light blue spotted with white.

Blue-bellied Viper. *Sheppard Trans. Linn.* vii. p. 56.

*Length* 22-25 inches. *Head* with a spot resembling the letter V, the scales of the under-part yellowish-white edged with dull red : *iris* red, pupil brownish-black : scales on the edge of the upper-jaw yellowish-white edged with brown : *sides* spotted with dark brown : scales of the *belly* spotted with white, some of the first row edged with white : *tail* the first part blue edged with red, the end yellow spotted with white.

15. *C. Prester*. Entirely black, with a jet-black indented band down the back.

Black Viper. *Shaw Zool.* iii. p. 375.

Much resembles the last, except in colour and number of scales: tips speckled with white: plates of the belly 153: scales below the tail 32.

*Obs.* These 3 have a great affinity with each other.

16. *C. natrix*. Olive-brown or bluish, with a black and a yellow patch each side the neck: down the sides a row of narrow black spots: belly dusky, or yellowish.

Ringed Snake. *Brit. Zool.* iii. t. 4. *Shaw Zool.* iii. p. 447.

Body 3-5 feet long: head clothed with large plates: mouth marked with black bars at the sides: scales of the back carinate: belly whitish yellowish or brownish, with an irregular longitudinal black stripe, beginning at the 15th plate: plates of the belly 170: scales under the tail 60.

17. *C. Dumfriensis*. Pale brown, with reddish-brown transverse flexuous bands in pairs.

Dumfries Snake. *Sow. Brit. Miscell.* 1. p. 5. tab. 3.

Body with reddish-brown spots on the sides between the bands: scales of the back not carinate: plates of the belly 162: scales under the tail about 80.

## 5. ANGUIS. Slow-worm.

18. *A. fragilis*. Rufous-grey, with 3 longitudinal brown lines down the back: belly lead-colour.

Blind-worm. *Br. Zool.* iii. t. 4. *Bort. Corn.* t. 28.

2. Of a darker colour: scales of the belly 126; under the tail 136.

Aberdeen Snake. *Br. Zool.* iii. p. 33.

Body 10 or 12 inches long: head small, covered in front with large scales: sides sometimes streaked with black and white: scales small, soft, close-set; of the belly 135, under the tail 135.

## CLASS IV. PISCES. FISHES.

Animals inhabiting waters, furnished with gills for the purpose of breathing, and fins for swimming.

## ORDER I. APODES.

*Bony fishes, without ventral fins.*

1. **ANGUILLA.** *Head smooth: nostrils tubular: eyes covered with the common skin: gill-membrane 10-rayed: body roundish, smooth, mucous: dorsal, caudal, and anal-fins united: spiracles behind the head or pectoral fins.*
2. **OPHIS.** *Habit of the Anguilla, but the tail is without fin at the end, causing the dorsal and anal fins to be distinct.*
3. **ANARICHAS.** *Head rounded, obtuse: front-teeth in each jaw, 6 or more in number, conic, strong, divergent: grinders in the lower-jaw and palate, rounded: gill-membrane 6-rayed: body roundish: caudal-fin distinct.*
4. **AMMODYTES.** *Head compressed, narrower than the body; upper-lip doubled; lower-jaw narrow, pointed: teeth small, very sharp: gill-membrane 7-rayed: body long, square, rounded at the sides, with very minute scales: caudal-fin distinct.*
5. **OPHIDIUM.** *Head somewhat naked: teeth in the jaws, palate, and throat: gill-membrane 7-rayed: body ensiform.*
6. **LEPTOCEPHALUS.** *Head small, narrow: body very thin and flat: pectoral fins none.*
7. **XIPHIAS.** *Head with the upper-jaw ending in a long sword-like projection: mouth without teeth: gill-membrane 8-rayed: body roundish, without apparent scales.*

## ORDER II. JUGULARES.

*Bony fishes, with the ventral fins placed before the pectoral.*

8. **CALLIONYMUS.** *Upper-lip doubled up: eyes vertical, approximate: gill-covers closed, with a small aperture each side the neck; the membrane 6-rayed: body naked: ventral-fins very remote.*
9. **TRACHINUS.** *Head compressed, a little rough: gill-membrane 6-rayed; the covers prickly, the lower piece serrate: body compressed: vent near the breast.*
10. **GADUS.** *Head smooth: gill-membrane with 7 cylindrical rays: body oblong, clothed with deciduous*



scales: *fins* all covered with the common skin; dorsal and anal generally more than one, the rays unarmed: *ventral-fins* slender, ending in a point, 6 or 7 rayed.

11. **BLENNIUS.** *Head* sloping: *gill-membrane* 6-rayed: *body* lanceolate, a little compressed, lubricous: *ventral fins* 2, 3, or 4-rayed, unarmed.

### ORDER III. THORACICI.

*Bony fishes, with the ventral fins placed directly under the pectoral.*

12. **CEPOLA.** *Head* short, roundish, compressed: *teeth* curved, sharp, in a single row: *gill-membrane* 4-6 rayed: *body* very long, compressed, naked: *belly* extremely short.
13. **ECHINEIS.** *Head* furnished at top with a flat oval transversely grooved shield: *gill-membrane* 9 or 10-rayed: *body* without scales.
14. **GوبيUS.** *Head* small: *eyes* approximate, with 2 punctures between them: *gill-membrane* 4-rayed: *body* compressed, clothed with small scales, with a tubercle behind the vent: *dorsal fins* 2: *ventral-fins* united into a funnel-like oval.
15. **COTTUS.** *Head* broader than the body, spinous: *eyes* vertical, furnished with a nictitant membrane: *gill-membrane* 6-rayed: *body* round, generally without scales, tapering to the tail: *dorsal-fins* often 2.
16. **ZEUS.** *Head* compressed, sloping down; upper-lip arched by a transverse membrane: *tongue* mostly subulate: *gill-membrane* with 7 perpendicular rays, the lowest transverse: *body* compressed, thin, broad, somewhat rhombic: first *dorsal-fin* generally furnished with projecting filamentous rays.
17. **PLEURONECTES.** *Head* small: *eyes* both on the same side of the head, and near each other: *mouth* arched: *jaws* unequal, toothed: *gill-membrane* 4-7-rayed: *body* flattened, one side a little convex and coloured, representing the back; the other flat and paler, representing the belly: *vent* near the head.
18. **SPARUS.** *Teeth* strong, disposed in one or more rows: *grinders* convex, smooth, disposed in ranges, and forming a kind of pavement in the mouth: *gill-membrane* 4-6-rayed; the covers smooth, unarmed, scaly: *lips* thick: *body* compressed: *pectoral fins* pointed: *tail* forked.
19. **LABRUS.** *Teeth* strong, rather sharp: *lips* thick: *gill-membrane* 4-6-rayed; the covers unarmed and scaly: *pectoral-fins* and *tail* rounded.

20. **PERCA.** *Jaws* unequal : *teeth* sharp, incurved : *gill-membrane* 7-rayed ; the covers scaly, of 3 pieces, the upper-piece serrate : *lateral-line* arched with the back : *scales* mostly hard and rough : *dorsal-fin* spinous on the fore-part : *vent* nearer the head than the tail.
21. **SCOMBER.** *Head* compressed, smooth : *body* oblong, smooth, sometimes carinate by the lateral line : *gill-membrane* 7-rayed : between the dorsal-fin and tail are mostly several *spurious fins*.
22. **GASTEROSTEUS.** *Jaws* armed with minute teeth : *gill-membrane* 3, 6, or 7-rayed ; the cover of 2 pieces, rounded and striate ; *body* somewhat lengthened : *lateral-line* straight : *dorsal-fin* single, with distinct spines between it and the head : *ventral-fins* spinous : *belly* carinate or shielded on the sides, and bony beneath.
23. **MULLUS.** *Head* compressed, sloping, scaly : *eyes* oblong, approximate, vertical, furnished with a nictitant membrane : *nostrils* double, minute : *palate* armed with small teeth : *mouth* bearded : *gill-membrane* 3-rayed ; the covers of 3 pieces, very finely striate : *body* clothed with large deciduous scales.
24. **TRIGLA.** *Head* large, mailed, marked with rough lines : *eyes* large, round, vertical : *palate* and *jaws* armed with sharp teeth : *gill-membrane* 7-rayed ; the cover of a single radiate spinous piece : *back* straight, with a longitudinal spinous groove each side : *pectoral-fins* with generally finger-shaped processes placed before them.

#### ORDER IV. ABDOMINALES.

*Bony fishes, with the ventral fins placed behind the pectoral.*

25. **COBITIS.** *Head* small, oblong, naked : *mouth* generally bearded : *eyes* seated in the upper-part of the head : *gill-membrane* 4-6-rayed : the covers of one piece, closing beneath : *body* of nearly equal thickness from head to tail, covered with mucus and small thin easily deciduous scales : *back* straight, with a single fin : *vent* nearer the tail : *tail* rounded.
26. **SALMO.** *Head* smooth, compressed : *tongue* cartilaginous, moveable : *teeth* in the jaws and on the tongue : *gill-membrane* 4-12-rayed ; the cover of 3 pieces : *body* compressed : *back* convex, furnished on the hind-part with a fleshy fin without rays : *lateral-line* straight, nearer the back.

27. **ESOX.** *Head* somewhat flattened above: *mouth* wide: *tongue* broad, loose: *teeth* sharp, in the jaws, palate, and tongue: *nostrils* double, near the eyes: *gill-membrane* 7-12-rayed: *body* lengthened, compressed: *lateral-line* straight, nearer the back, hardly visible: *dorsal* and *anal* fins short, and mostly opposite.
28. **ARGENTINA.** *Teeth* in the jaws and on the tongue: *gill-membrane* 8-rayed: *vent* near the tail: *ventral-fins* many rayed.
29. **ATHERINA.** *Upper-jaw* a little flattened: *gill-membrane* 6-rayed: *body* marked on the sides with a silvery stripe.
30. **MUGIL.** *Lips* membranaceous, the lower-one carinate within: *teeth* minute: *mouth* with an inflected callosity at the corners: *gill-membrane* with 6 curved rays; the covers smooth and rounded; *body* fleshy, with large scales: *dorsal-fins* two.
31. **EXOCÆTUS.** *Head* scaly: *mouth* without teeth; the jaws connected on each side: *gill-membrane* 10-rayed: *belly* angular: *pectoral-fins* very large and long, giving the power of flight.
32. **CLUPEA.** *Head* compressed: *mouth* rough within: *upper-mandible* with the side-plates serrate: *gill-membrane* 8-rayed, the covers of 3 or 4 pieces; gills internally setaceous: *lateral-line* near and parallel with the back: *belly* sharp, and generally serrate: *ventral-fins* about 9-rayed: *tail* forked.
33. **CYPRINUS.** *Mouth* small, without teeth; *teeth* in the throat: *gill-membrane* 3-rayed: *ventral-fins* mostly 9-rayed.

## ORDER V. CARTILAGINEI.

*Fishes with a cartilaginous skeleton.*

34. **PETROMYZON.** *Body* eel-shaped: *mouth* placed underneath, with numerous teeth in circular rows: *spiracles* 7 on each side the neck, and one on the nape: *pectoral* and *ventral-fins* none.
35. **GASTROBRANCHUS.** *Body* eel-shaped: *mouth* placed underneath, bearded with numerous pectinate teeth: *spiracles* 2, beneath the belly.
36. **RAJA.** *Mouth* placed underneath, transverse, armed with teeth: *spiracles* 5 each side, placed obliquely and beneath near the neck: *body* thin, flat, more or less rhombic.
37. **SQUALUS.** *Mouth* placed underneath the anterior part of the head, armed with numerous teeth disposed in rows: *spiracles* 4-7, semilunar, on the sides of the neck: *body* oblong, more or less cylindrical.

38. CHIMÆRA. *Head pointed: spiracle solitary, 4-parted, under the neck: mouth placed beneath, with the upper-lip 5-cleft: cutting-teeth 2 in front, both above and below.*
39. ACIPENSER. *Snout bearded underneath: mouth placed beneath the head, oval, retractile, without teeth: aperture of the gills on the sides of the head: body elongated, mailed above by bony tubercles.*
40. LOPHIUS. *Head depressed: teeth sharp, numerous: tongue broad, armed with teeth: gills 3, with a lateral-simple aperture: pectoral-fins broad, more or less resembling feet; dorsal and anal opposite, and near the tail: vent in the middle of the body.*
41. CYCLOPTERUS. *Head obtuse: mouth placed in front: teeth in the jaws: tongue short, thick; gill-membrane 4-rayed, the cover of one piece: body thick, without scales: ventral-fins united into a circle, forming an instrument of adhesion.*
42. CEPHALUS. *Jaws bony: aperture of the gills linear or oval: body terminating abruptly, so as to resemble the head of a fish cut off.*
43. TETRODON. *Jaws bony, divided at the tip: aperture of the gills linear: body rough with prickles underneath: ventral-fins none.*
44. SYNGNATHUS. *Snout long, cylindrical, with the mouth at the end, furnished with a lid: gill-covers large, striate, closed: spiracle tubular, on the nape: body elongated, jointed, mailed: ventral-fins none.*
45. CENTRISCUS. *Snout long, without lid: mouth without teeth: aperture of the gills repand: body compressed, carinate along the belly: ventral-fins united.*



ORDER I. APODES. *APODAL.*1. ANGUILLA. *Eel.*

1. *A. vulgaris.* Olive-brown, more or less silvery underneath: lower-jaw longer than the upper.

Common Eel. *Shaw Zool. iv. p. 15. tab. 1.*

*Body* in stagnant waters blackish, yellowish beneath, sometimes varied with brown lines, very slippery: *head* small, narrowed on the forepart: *nostrils* small, round, with another lengthened one beneath each eye: *teeth* small, sharp, numerous: *iris* golden, pupil blackish: *aperture of the gills* semilunar: *jaws* with several minute pores each side: *trunk* a little compressed: *lateral-line* straight: *skin* covered with soft oblong scales: *pectoral-fins* small, oval, paler, with about 19 rays: *dorsal, caudal, and anal* united.

2. *A. Conger.* Brown, silvery beneath: lateral line speckled with white: lower-jaw rather shorter than the upper.

Conger Eel. *Shaw Zool. iv. t. 1. Will. ichth. t. G. 6.*

Much resembles the last, except in being of a larger size, sometimes growing to 10 feet long and weighing 100 pounds and upwards: *body* with whitish patches on the sides: *lateral-line* broad: *iris* silvery: edges of the *dorsal* and *anal* fins black: *pectoral-fins* 19 rayed.

3. *A. Myrus.* Dusky, with elongated snout: fin surrounding the body whitish edged with black.

Rondeletian Eel. *Arted. Gen. 24. syn. 40.*

*Head* narrowed on the fore-part: *sides* marked with a few yellow specks: *upper-lip* with 2 short tentacula: each side the neck a branchial orifice.

2. OPHIS. *Sea Serpent.*

4. *O. maculata.* Silvery, with dark-brown spots.

Spotted Sea Serpent. *Shaw Zool. iv. p. 22. tab. 2. Bloch. t. 154.*

*Body* 3 or 4 feet long, slender, silvery-white with a triple row of dark-brown oblong spots: *head* slender: *eyes* moderate: *mouth* wide: *teeth* curved inwards: *pectoral-fins* small, white: *tail* naked, round, pointed. *Berkenhout.*

3. ANARICHAS. *Wolf-fish.*

5. *A. Lupus.* Livid brown, with transverse darker bands.

Ravenous Wolf-fish. *Brit. Zool. iii. t. 24. Donovan's Fishes, t. 24.*

*Body* 4-7 feet long, tapering, compressed: *head* strong, sloping; *mouth* wide: *teeth* 5 or 6 in each jaw, conical, and standing far out, with lesser-ones within them; grinders close to the canine teeth in the upper-jaw, but detached in the lower: *eyes* oblong, *iris* silvery, pupil black: *skin* slippery: *vent* large, nearer the head: *pectoral-fin* 18-rayed: *dorsal* reaching from the hind-part of the head nearly to the tail, 73-rayed; *anal* extending as far as the dorsal, 46-rayed: *tail* rounded of 13-18 rays.

4. AMMODITES. *Launce.*

6. *Ammodites Tobianus.*

Sand Launce. *Br. Zool. iii. t. 25. Donovan's Fishes t. 32.*

*Body* 9 or 10 inches long, slender, square, rounded at the sides: *lower-jaw* longer than the upper: *throat* with 2 oblong rough bones: *eyes* small, *iris* silvery, pupil black: *gill-cover* silvery, of 4 pieces:

*nostrils* double, between the eyes and mouth : *back* blue varied with green, with a furrow for receiving the dorsal fin : *sides* and *belly* silvery ; *lateral-line* straight, with another above and below it : *dorsal-fin* nearly as long as the back, of 58 soft rays : *pectoral-fin* small, 12-rayed : *vent* near the tail, with a brown spot near it : *anal-fin* reaching from the vent to the tail, 28-rayed : *tail* slightly forked, with rounded lobes, 16-rayed.

### 5. OPHIDIUM.

7. *O. barbatum*. Lower-jaw with 2 long bifid cirri.

Bearded Ophidium. *Shaw Zool. iv. p. 68. tab. 7.*

*Body* whitish, with a dusky tinge above, reddish beneath, covered with small dusky specks, long, thickish, covered with small scales : *head* small, without scales : *upper-jaw* rather longer : *lips* thick : *teeth* small : *iris* golden with a transparent nictitant membrane, pupil black : *lateral-line* brown, straight : *vent* nearer the head : *pectoral-fins* small, brown at the base, edged with grey : *dorsal-fin* beginning above the middle of the back, united with the caudal and anal, narrow, white edged with black : *tail* pointed.

8. *O. imberbe*. Jaws without cirri : tail rather obtuse.

Beardless Ophidium. *Br. Zool. iii. app. tab. 93.*

*Body* oblong, slender : *head* a little compressed, rounded : *upper-jaw* rather longer : *iris* broad, silvery : *gill-covers* angular on the upper-part, with a strong sharp point over the valve : *lateral-line* near the back : *vent* nearly in the middle : *pectoral-fins* rather large, lanceolate ; the rest all united, the ventral one as long as the dorsal.

### 6. LEPTOCEPHALUS. Morris.

9. *Leptocephalus Morisii*.

Anglesea Morris. *Br. Zool. iii. t. 25. Shaw Zool. iv. t. 10.*

*Body* about 4 inches long, flat, thin, nearly transparent, growing slenderer towards the tail and pointed : *eyes* large : *teeth* very small, in both jaws : *lateral-line* straight, decussate with oblique striæ : aperture of the *gills* large : *pectoral, ventral, caudal-fins* none : *dorsal-fin* low, thin, extending the whole length of the back to near the tail : *anal-fin* reaching to near the tail : *tail* pointed.

### 7. XIPHIAS. Sword-fish.

10. *X. Gladius*. Dorsal-fin falcate, tapering behind.

Common Sword-fish. *Br. Zool. iii. t. 26. Shaw Zool. iv. t. 14.*

*Body* growing to 20 feet long, round, taper : *head* flattish, sloping, steel-blue : *jaws* both pointed ; the upper-one 4 times as long as the lower, flattish above and beneath, acute at the sides, with a furrow down the middle : *nostrils* double, near the eyes : aperture of the *gills* large, the cover of 2 pieces : *back* bluish-black : *sides* and *belly* silvery white : *lateral-line* a series of black specks : *dorsal-fin* brown, suddenly sloping, arched, with an elevated process near the tail, 42-rayed : *pectoral* yellowish, 17-rayed : *anal* falcate, cinereous, 18-rayed : *tail* semilunar, with a fin-like process each side before it.

## ORDER II. JUGULARES. JUGULAR.

### 8. CALLIONYMUS. Dragonet.

11. *C. Lyra*. First ray of the first dorsal fin as long as the body.

Gemmeous Dragonet. *Br. Zool. iii. t. 27. Donov. Fish. t. 9.*

*Body* about a foot long, variegated rich blue yellow and white : *head* oblong, broad, above convex and brown, beneath flat, spotted

with blue at the sides: *throat* black: *eyes* approximate, vertical, oblong; pupil dark blue: aperture of the *gills* narrow, tubular, the cover of one piece, with a 3-forked spine at the end: *back* straight, brown, yellow at the sides, white towards the belly with 2 interrupted blue lines: *lateral-line* straight: *vent* near the middle of the body: first *dorsal-fin* 4-rayed, the first ray arched and very long second 10-rayed: *pectoral-fins* brown, 18-rayed: *ventral* 5-rayed; *anal* blue; 10-rayed: *caudal* long, round, 10-rayed.

12. *C. Dracunculus*. First ray of the first dorsal fin shorter than the body.

Sordid Dragonet. *Br. Zool.* iii. t. 28. *Donov.* t. 84.

Body 6 inches and a half long, taper, dirty yellow with white and dusky spots, white on the belly: *head* broad, compressed, sloping: *eyes* large, oval, vertical; iris reddish, pupil black: upper-jaw longer: *back* longitudinally grooved, with 4 perforations before the first fin: *lateral-line* hardly visible: *vent* nearer the head: first *dorsal-fin* white before, black behind, 4-rayed; second yellowish with paler lines, 10-rayed; *pectoral* light-brown, 16-rayed; *ventral* broad, 5-rayed; *anal* 10-rayed: *tail* rounded, long, 8-rayed.

### 9. TRACHINUS. Weever, Stingbull.

13. *Tr. Draco*. Silvery, with oblique transverse yellowish-bands: first dorsal-fin 5-rayed, black.

Common Weever. *Br. Zool.* iii. t. 28, 29. *Donovan* t. 23.

Body 10 or 12 inches long, elongated, compressed, covered with small deciduous scales, with a dusky tinge on the upper parts: *under-jaw* longer, sloping much towards the throat: *mouth* large, oblique: *eyes* vertical, iris yellow, pupil black: aperture of the *gills* large, the covers tip with a strong spine: *back* straight, yellow-brown: *lateral-line* straight: first *dorsal-fin* armed with strong spines, lodged when closed in a hollow of the back; second reaching almost to the tail, 25-rayed: *pectoral* 15-rayed; *ventral* 6-rayed: *anal*. 25-rayed: *tail* rather rounded, 24-rayed.

### 10. GADUS. Codfish.

*A. With 3 dorsal fins: mouth bearded.*

14. *G. Morhua*. Cinereous, with yellowish spots: jaws and tail nearly even: first anal ray spinous.

Common Cod. *Shaw Zool.* iv. t. 22. *Jonst. pisc.* 8. t. 2. f. 1.

Body generally 2 or 3 feet long, taper, with a prominent belly: *mouth* large: *jaws* nearly equal, the lower-one with a single beard: *scales* rather large: *lateral-line* broad, whitish, straight till it reaches the vent: *vent* nearer the head: first *dorsal-fin* with 14 rays, second 19, third 21: *pectoral* 18: *ventral* 6-rayed: first *anal-fin* with 20 rays, second 16: *tail* 44-rayed, the first on each side short and bony.

15. *G. Æglefinus*. Whitish, tail forked: upper-jaw longer: beyond the pectoral-fins a large black spot.

Haddock. *Donovan's Fishes*, t. 59. *Bloch* t. 62.

Body hardly 2 feet long: *head* sloping: *eyes* large; iris silvery, pupil black: *mouth* narrow: *lower-jaw* with a single beard: *scales* small, firm: *lateral-line* nearer the back, black: *back* with a dusky cast: *fins* bluish, first dorsal with 16 rays, second 20, third 19; *pectoral* 19-rayed; *ventral* 6: *anal* 21, 22; *caudal* 27-rayed.

16. *G. Callarias*. Cinereous, beneath white: head and body spotted with brown: tail forked: upper-jaw longer.

Dorfe. *Bloch* t. 63. *Jonst. pisc.* t. 46. f. 4.

Body less than the last: *head* smaller, marked with several spots

which are brown in the summer and black in the winter: *scales* small, soft: *iris* pale yellow, pupil black: *body* sometimes with a reddish cast, and the spots orange in the young fish: *lower-jaw* with a single beard: *lateral-line* nearer the back, broad, curved, spotted: *dorsal-fins* 15, 16, 18-rayed; *pectoral* 17; *ventral* 6; *anal* 18, 17; *caudal* 26-rayed.

17. *G. Luscus*. Back olive, sides yellowish: first ray of the ventral fins long, setaceous: tail bordered with black.

Bib. *Brit. Zool.* iii. t. 30. *Donovan Fish.* t. 19.

*Body* about a foot long, white beneath, prominent on the back and belly: *scales* larger, deciduous: *chin* with a single beard: *anal-fin* dusky edged with white: *dorsal-fins* 12, 20, 10-rayed; *pectoral* 16; *ventral* 6; *anal* 13, 18; *tail* 17-rayed.

18. *G. punctatus*. Pale brown with golden spots, beneath white thickly covered with minute dusky specks: upper-jaw longer.

Speckled Cod. Taken frequently in the Weirs at Swansea.

*Body* 18 inches long, slightly arched on the back, a little prominent on the belly, covered above with numerous gold-yellow roundish spots, beneath with dusky specks which are stellate under a glass: *head* large, gradually sloping: *teeth* small, in several rows in the upper-jaw, in the lower a single row: *nostrils* double: *iris* reddish, pupil black: *chin* with a single beard: *nape* with a deep longitudinal groove: *lateral-line* nearer the back, curved as far as the middle of the second dorsal-fin, growing broader and whiter towards the end: *upper-fins* and *tail* brown, with obscure yellowish spots, and darker towards the ends; lower-ones tinged with green: *vent* near the middle of the body: *scales* small, all of them under a glass minutely speckled with brown: *gill-covers* of 2 pieces: *lower-jaw* with 5 obscure punctures each side: *dorsal-fins* 14, 20, 18-rayed; *pectoral* 18: *ventral* 6, the first ray shorter than the second and divided a little way down; *anal* 19, 16; *tail* even, 36-rayed.

Differs from *G. Morhua* in not having the first anal ray spinous, and in the lower-jaw being considerably longer; from *G. Luscus* in the first ray of the ventral-fin being shorter than the second; from *G. barbatus* in wanting the 7 distinct punctures on the lower-jaw, in its small scales, and in the first dorsal-fin not ending in a long fibre; and from *G. Callarias* in not being spotted with brown, and in having the lateral-line white.

19. *G. barbatus*. White, with brownish back and fins: lower-jaw with 7 punctures each side.

Whiting-pout. *Bloch* t. 166. *Br. Zool.* iii. p. 183.

*Body* about a foot long, much arched and carinate on the back: *gill-cover* of many pieces: *lateral-line* broad, white, crooked: first *dorsal-fin* triangular, ending in a long fibre: *pectoral-fins* with a dusky spot at the bottom: *vent* nearer the head: *dorsal-fins* 12, 20, 20-rayed; *pectoral* 18: *ventral* 6; *anal* 19, 19; *tail* 40-rayed.

20. *G. minutus*. Silvery, with the back brownish: upper-jaw longer: each side the lower-jaw 9 punctures: vent in the middle of the body.

Poor. *Br. Zool.* iii. t. 30. *Bloch* t. 67. f. 1.

*Body* about 6 inches long, with dusky spots on the sides: *head* rather sharp: *iris* silvery, pupil black: *lower-jaw* with a single beard: *lateral-line* straight, narrow: *tail* a little forked: *belly* black within: *dorsal-fins* 12, 19, 17-rayed; *pectoral* 13; *ventral* 6; *anal* 27, 17; *caudal* 18-rayed.



B. *With 3 dorsal fins : jaws beardless.*

21. *G. Merlangus*. Silvery, above brownish with yellow spots : at the base of the pectoral fins a black spot : upper-jaw longer.

Whiting. *Donovan's Fishes* t. 36. *Bloch* t. 65.

Body about a foot long, taper, clothed with small round thin scales : head narrowed in front : teeth in the upper-jaw numerous, the fore ones long ; in the lower-jaw a single row : lower-jaw with 9 or 10 punctures each side : lateral-line nearly straight, yellow : dorsal-fins white, 14, 18, 20-rayed ; pectoral blackish, 20-rayed ; ventral white ; anal edged with white, 30, 20 ; tail blackish, a little forked, 31-rayed.

22. *G. Carbonarius*. Blackish, beneath silvery-white : lower-jaw longer : lateral-line straight white.

Coal-fish. *Donovan's Fishes* t. 13. *Br. Zool.* iii. t. 31.

Body above 2 feet long, covered with thin oblong scales : head narrow, pointed : iris yellow with a black spot : mouth black within : tongue silvery : fins black, lower-part of the ventral and anal white : tail forked : dorsal-fins 14, 20, 22-rayed ; pectoral 18 ; ventral 6 ; anal 22, 19 ; caudal 26-rayed.

23. *G. Pollachius*. Rather silvery, with brown back and fins : lower-jaw longer : lateral-line curved, black.

Pollack. *Donovan's Fishes*, t. 7. *Bloch* t. 68.

Body about 18 inches long, above dusky-brown, gradually whitening towards the belly, marked with yellow lines beneath the lateral line : head narrowed in front : eyes large, pupil black, iris yellow spotted with black : scales small, thin, oblong, edged with yellow : dorsal-fins 12, 19, 15-rayed ; pectoral 19 ; ventral 6 ; anal 23, 16 : tail slightly forked, 42-rayed.

C. *With two dorsal fins.*

24. *G. Merluccius*. Whitish, greyish on the back : mouth beardless : lower-jaw longer.

Hake. *Donovan's Fishes* t. 28. *Bloch* t. 154.

Body one and a half to 2 feet long, elongated : head large, broad and flattish, compressed : jaws with a double row of sharp teeth, and a single row each side on the palate : near the eyes 4 small perforations : lateral-line straight nearer the back, beginning with several small tubercles near the head : vent nearer the head : first dorsal-fin, pectoral and ventral pointed : tail even : dorsal-fins 9, 38-rayed ; pectoral 15 ; ventral 8 ; anal 36 ; caudal 18-rayed.

25. *G. Molva*. Grey, beneath whitish : mouth bearded : upper-jaw longer : tail rounded, with a dusky bar.

Ling. *Shaw Zool.* iv. t. 23. *Bloch* t. 69.

Body 3 or 4 feet long, slender, roundish, covered with thin oblong scales : head flat : iris white, pupil black : chin with a small beard : tongue white, thin, pointed : lateral-line straight : fins edged with white, all blackish except the ventral which are white : dorsal-fins 15, 65-rayed ; pectoral 15 ; ventral 6 ; anal 67 ; caudal 40-rayed.

26. *G. Lota*. Yellowish-olive, variegated with black : mouth bearded : jaws equal : tail rather oval

Burbot. *Shaw Zool.* iv. t. 23. *Donovan* t. 92.

Body growing to 3 feet long, slender, roundish, covered with minute soft thin scales : head broad, flattened : eyes small, lateral : iris yellow, pupil blue : chin with a beard or two, and 3 on the nose : tongue broad, brownish-yellow : lateral-line straight : vent in the middle of the body : dorsal-fins 11, 61-rayed ; pectoral 16 ; ventral 6 ; anal 50 ; caudal 35-rayed.

27. *G. Mustela*. Olive-brown, beneath whitish: mouth with 4 beards on the upper-jaw, and 1 on the lower: first dorsal-fin obsolete, lodged in a furrow, with a cirrus before it.

Five-bearded Cod. *Brit. Zool.* iii. t. 33. *Donovan's Fishes* t. 14.

*Body* about 19 inches long, with a yellowish tinge above, covered with mucus and very small scales: *head* small, silvery with a violet tinge: *iris* golden, pupil black: *mouth* large; upper-jaw longer: *lateral-line* obsolete: *tail* rounded: *dorsal-fins* 1, 42-rayed: *pectoral* 14; *ventral* 7; *anal* 40; *caudal* 25-rayed.

28. *G. tricirratus*. Reddish-yellow with dark-brown spots: mouth with 2 beards on the upper-jaw and 1 on the lower: first dorsal-fin obsolete, lodged in a furrow, without the cirrus before it.

Three-bearded Cod, Rockling. *Brit. Zool.* t. 33. *Donovan* t. 2.

*Body* long, slender, compressed: *teeth* numerous, small, disposed along the jaws in the form of a broad plate: *palate* with a triangular set of small teeth; *fins* all spotted, the ventral reddish: *lateral-line* bent till the middle of the body: *dorsal-fins* 1, 56; *pectoral* 18; *ventral* 6; *anal* 46; *caudal* 20 rayed.

#### D. With a single dorsal-fin.

29. *G. Brosme*. Lower-jaw with a single beard: ventral-fins fleshy, ending in 5 cirri: tail rounded, and with the dorsal and anal fins edged with white.

Torsk. *Br. Zool.* t. 34. *Donovan's Fishes* t. 70.

*Body* about 25 inches long, above yellow-olive, beneath white, a little compressed, prominent on the belly; *head* dusky, with a deep furrow reaching to the dorsal-fin which is rounded on the fore-part: *lateral-line* curved, whitish: *vent* in the middle of the body: *dorsal*, *anal*, and *caudal-fins* spotted: *pectoral* small, yellow, rounded: *dorsal-fin* 49-rayed; *pectoral* 21; *ventral* 5; *anal* 37; *caudal* 35-rayed.

### 11. BLENNIUS. *Blenny*.

30. *B. Gattorugine*. Whitish, with transverse brown undulations: over each eye and on the nape a palmate cirrus.

Gattorugine. *Br. Zool.* iii. t. 35. *Donovan* t. 86.

*Body* 8-10 inches long, compressed: *eyes* vertical, prominent; *iris* reddish, pupil black: *teeth* small, close-set: *palate* smooth: on the head 2 pair of branched membranes: *nastrils* near the eyes: *gill-cover* of one piece: *lateral-line* straight, nearer the back: *vent* nearer the head: *dorsal-fin* with generally a few black spots, the first 16 rays spinous, the hindmost very long: *dorsal-fin* 32-rayed; *pectoral* 13; *ventral* 2; *anal* 20; *caudal* 12-rayed.

31. *B. Galerita*. Yellowish-brown, speckled with black: between the eyes a transverse triangular crest edged with red.

Crested Blenny. *Br. Zool.* iii. t. 35.

*Body* 4 or 5 inches long, compressed, slender, slippery: *head* furnished with a skinny appendage which may be raised or depressed, and between the eyes a triangular prominence pointing backwards: *vent* behind the pectoral fins: *dorsal-fin* shallow, reaching from the head nearly to the tail, 60-rayed, of which 50 are spinous; *pectoral* 10; *ventral* small, short, 2; *anal* 36; *tail* rounded, 16-rayed.

32. *B. Phycis*. Grey-brown, with the nostrils slightly crested : lower-lip with a cirrus : back with 2 fins.

Hake Blenny. Forked Hake. *Br. Zool.* iii. p. 193. n. 82.

Body about half the size, black, smooth.

Body about a foot long : *palate* with a triangular bed of small teeth : *lateral-line* curved : *vent* in the middle of the body : *dorsal-fins* 10, 61-rayed, the first triangular with the first ray long and slender, second commencing just behind the first and reaching nearly to the tail ; *pectoral* 15 ; *ventral* 2-rayed, joined at the bottom and forked towards the end ; *anal* 57 ; *tail* rounded, 30-rayed.

33. *B. trifurcatus*. Brown, with white lips : ventral-fins of 3 distinct cirri

Trifurcated Blenny. *Br. Zool.* iii. p. 196. t. 32.

Body about a foot long, deep brown, except the foldings of the lips which are snowy ; compressed from the pectoral-fins, and suddenly tapering to the tail : *lower-jaw* with a small beard : *head* broad, depressed : *eyes* large, iris yellowish : *palate* with a semilunar row of small curved teeth : *tongue* none : *back* with a cavity at the beginning, in which is the rudiment of the first dorsal-fin ; second *dorsal-fin* reaching to the tail, the *anal* corresponding : above the *pectoral-fin* each side a row of tubercles, from which commences the *lateral-line* which is abruptly curved in the middle : *tail* rounded.

34. *B. Pholis*. Olive-green, marbled with blackish and whitish clouds : lateral-line curved sub-bifid.

Smooth Blenny. *Brit. Zool.* iii. t. 36. *Donovan* t. 78.

Body 7 or 8 inches long, olive, dark-brown or green, variously clouded, with orange fins : *head* thick : *mouth* large : *jaws* armed with a row of sharp teeth, the upper-one longer : *lips* whitish : *nostrils* with 4 fibres : *eyes* large, iris red, pupil black : *tongue* smooth : *palate* rough : *vent* nearer the head : *dorsal-fin* long, appearing as if divided in the middle, 31-rayed ; *pectoral* rounded, 12 ; *ventral* divided at the end, 2 ; *anal* 20, the ends of the rays pure white ; *tail* rounded, 13-rayed,

35. *B. Gunnellus*. Yellowish-brown, with deeper specks ; dorsal-fin with about 10 round black spots, each surrounded with a paler ring.

Spotted Blenny. *Brit. Zool.* iii. t. 35. *Donovan* *Fishes* t. 27.

Body 8 or 9 inches long, slender, much compressed, white beneath : *head* small : *mouth* sloping obliquely downwards : *lower-jaw* longer : *iris* white, pupil black : *lateral-line* straight, obsolete : *vent* nearer the head : *dorsal-fin* nearly as long as the body, with 9-12 ocellate spots, 77-rayed ; *pectoral* small, 12 ; *ventral* 2 ; *anal* orange, spotted with brown at the base, 43 ; *tail* yellow, rounded, 16-rayed.

36. *B. viviparus*. Olive, with dusky bars down the sides, beneath white : nostrils tubular : dorsal caudal and anal-fins united.

Viviparous Blenny. *Br. Zool.* iii. t. 37. *Donovan* t. 34.

Body about 12 inches long, taper, yellowish-olive with dusky bars across the back, covered with minute oblong white scales edged with black : *head* small : *upper-jaw* longer : *vent* nearer the head : *lateral-line* straight, obsolete : *throat* yellow : *dorsal-fin* with a deep indenture near the tail, 92-rayed ; *pectoral* yellow, 48 ; *ventral* 2 ; *anal* yellow 68 ; *caudal* 48-rayed.

## ORDER III. THORACICI. THORACIC.

## 12. CEPOLA. Band-fish.

37. *C. rubescens*. Pale red, with silvery undulate transverse lines : tail lanceolate.

Red Bandfish. *Montague Linn. Trans.* vii. p. 291. tab. 17.

*Body* 10 inches long, tapering to a point : *head* not larger than the body : *jaws* armed with a row of distant curved teeth : *eyes* large, iris silvery mixed with crimson, pupil blue-black : *gill-covers* silvery, of 2 pieces, the membrane 4-rayed : *dorsal*, *caudal*, and *anal fins* united, reaching nearly all round the body ; *pectoral*, rounded, 16-rayed ; *ventral* whitish, close together, rather before the pectoral, oval, 6-rayed, the first ray spinous with a filament before them longer than the rays : *lateral-line* a little curved near the head : *vent* near the breast.

## 13. ECHINEIS. Sucking-fish.

38. *E. Remora*. Dusky-brown, with about 18 bars on the shield : tail slightly forked.

European Sucking-fish. *Shaw Zool.* iv. p. 201. t. 31.

Taken by the Author, in Swansea, from the back of a Cod-fish, in the summer of 1806.

*Body* 12 or 14 inches long, without scales, marked with numerous impressed dots ; *head* rounded in front, *jaws* with numerous sharp teeth, the lower one longer : *shield* margined, divided down the middle, with 16-19 more or less curved grooves armed with 2 or 3 rows of small spines : *tongue* and *palate* beset with small teeth : near the *upper-lip* are 2 pores each side : *aperture* of the *gills* large, the cover of one piece : *lateral-line* bent at the end of the pectoral-fin : *vent* nearer the tail : *dorsal-fin* 22-rayed ; *pectoral* 22 ; *ventral* 4 ; *anal* 20 ; *tail* semilunar, 20-rayed.

## 14. GOBIUS. Goby.

39. *G. niger*. Variegated whitish and brown : second dorsal-fin with about 14 rays.

Black Goby. *Br. Zool.* iii. t. 38. *Shaw Zool.* iv. t. 34.

*Body* 5 or 6 inches long, covered with hard grey scales, soft, mucous ; *jaws* equal, with the teeth in 2 rows : *cheeks* inflated : from the *head* to the first dorsal-fin a small cavity : *dorsal* and *anal-fins* pale blue speckled with black : *belly* yellowish : *lateral line* obsolete : *vent* in the middle of the body : *dorsal-fins* 6, 14-rayed : *pectoral* 16 or 17, the middle-ray longest : *ventral* united in a sort of funnel 12 ; *anal* 13 ; *tail* rounded, 17-rayed.

40. *G. minutus*. Whitish, with ferruginous spots : eyes blue : fins with obscure ferruginous streaks.

Spotted Goby *Donovan's British Fishes*, tab. 28.

*Body* about 3 inches long : *head* depressed : *tongue* large : *teeth* in both jaws : *eyes* large, prominent ; iris sapphire-blue : *dorsal-fins* remote, 6, 11-rayed ; *pectoral* 20 : *ventral* 19 ; *anal* 11 ; *tail* even, 16-rayed.

## 15. COTTUS. Bullhead.

41. *C. Gobio*. Smooth, yellowish-olive, spotted with black, beneath whitish : gill-covers each with 2 curved spines.

River Bullhead. Miller's Thumb. *Br. Zool.* t. 39. *Donov.* t. 80.

*Body* 5 or 6 inches long, taper : *head* very large : *eyes* small, in the middle of the head, iris yellowish, pupil black : *jaws* equal ;



teeth in the jaws and palate : tongue loose, smooth : gill-cover of one piece : lateral-line in the middle : vent about the middle of the body : fins variegated with brown : dorsal-fins 8, 17-rayed ; pectoral 11 : ventral 4 ; anal 12 ; tail rounded, 12-rayed.

42. *C. Scorpius*. Brown, variegated with white : head armed with several spines : upper-jaw rather longer.

Father Lasher, *Br. Zool.* iii. t. 40. *Donovan* t. 35.

Body 9 or 10 inches long, taper, covered with minute tubercles : head with numerous large sharp spines, and 2 oblong soft ones before the eyes : eyes large, vertical, iris pale yellow, pupil black : mouth and palate armed with teeth : gill-cover of 2 pieces : fins with a reddish tinge, barred with deep brown ; lateral-line straight, nearer the back : vent in the middle of the body : dorsal-fins 8, 14-rayed ; pectoral scalloped, 9 ; ventral 3 ; anal 11 ; tail even, 14-rayed.

43. *C. cataphractus*. Brown, beneath whitish : body mailed : snout with 2 cloven tubercles : lower-jaw and throat bearded.

Armed Bullhead, *Pogge*. *Br. Zool.* t. 39. *Donovan* t. 16.

Body about 5 inches long, covered with strong bony crusts, divided into pieces, the ends of which project into a sharp point forming prickly lines down the back and sides : back with 3 or 4 dusky spots : head large, bony, rugged : lateral-line straight, in the middle : vent nearer the head : dorsal-fins 5, 7-rayed ; pectoral 18 ; ventral 3 ; anal 6 ; tail rounded, 10-rayed.

## 16. ZEUS. *Doree*.

44. *Z. Faber*. Tail rounded : sides marked with an oval dusky spot in the middle : dorsal and anal-fins 2.

John Doree, *Br. Zool.* iii. t. 41. *Donovan* t. 8. *Shaw* t. 41.

Body sometimes a foot or more long, dusky green, with a gilded tinge, and blue and white variations : head deformed, with a large projectile snout, and a deep cavity before the eyes : gill-covers of 2 pieces : chin and shoulders with 2 spines : back and belly serrate with spines : lateral-line curved : first dorsal-fin with spinous rays which end in long filaments : dorsal-fins 10, 24-rayed ; pectoral rounded, 14 ; ventral 7 ; anal 4, 22 ; tail rounded, 14-rayed.

45. *Z. Luna*. Tail lunate : body red, green, or purple, with oval white spots : dorsal and anal-fins solitary.

Opah, King-fish. *Br. Zool.* t. 42. *Sow.* t. 22. *Donov.* t. 97.

Body about 3 feet long, very deep from the back to the chest, and suddenly tapering to the tail : head short, rounded : back and sides silvery green blue or gold, with silver or gold spots, without scales : tongue thick, rough with prickles pointing backwards : fins scarlet, the dorsal and anal ones falcate, pectoral and ventral pointed : tail crescent-shaped.

## 17. PLEURONECTES. *Flat-fish*.

*A. Eyes both on the right side of the head.*

46. *Pl. Hippoglossus*. Body perfectly smooth, elongated, brown above, white beneath : tail lunate.

Holibut. *Donovan's Fishes* t. 75. *Blach* t. 47.

Body sometimes growing to 3 or 400 pounds weight, of a more lengthened form than most of the flat-fish : eyes large, very rarely placed on the left side of the head, iris white, pupil black : teeth long, curved, sharp, distant : lateral-line arched over the pectoral-fins : before the anal-fin a long spine : tail covered with scales at

the base: *dorsal-fin* 101-rayed; *pectoral* 14; *ventral* 5; *anal* 73; *caudal* 17-rayed.

47. *Pl. Platessa*. Smooth, brownish with round fulvous spots: head with a row of 6 tubercles reaching to the lateral-line.

Plaise. *Donovan's Fishes* t. 6. *Shaw Zool.* iv. t. 43.

Body growing to 15 or 16 pounds weight, clothed with thin soft scales, and marked with numerous dark orange spots: head covered with firm scales, each placed in its proper bed: mouth small, lower-jaw longer: teeth small, obtuse: lateral-line straight, in the middle: anal-fin with a large spine before it: tail rounded; scaly at the base, the rays longer than the membrane; *dorsal-fin* 72-rayed; *pectoral* 10; *ventral* 5; *anal* 54; *caudal* 18-rayed.

48. *Pl. Limanda*. Brownish, with rough scales: lateral-line arched over the pectoral fin.

Dab. *Donovan's Fishes* t. 44. *Bloch* t. 46.

Body 3 or 4 pounds weight, with soft oblong scales, pale brown, beneath white: head small: eyes large: *dorsal-fin* 73-rayed; *pectoral* 11; *ventral* 6; *anal* 53; tail nearly even, 15 rayed,

49. *Pl. microcephalus*. Dark brown, with rather smooth scales: head small, mouth diminutive: lateral-line a little curved over the pectoral fin.

Smear-dab. *Donovan's Fishes* tab. 42.

Body above dusky-brown, beneath white, without spots: mouth very minute, with the lips a little protruded: fins yellowish-brown; *dorsal* 90-rayed; *pectoral* 7; *ventral* 6; *anal* 73; tail rounded, 17-rayed.

50. *Pl. lævis*. Yellowish-brown, with quite smooth scales: beneath white with 5 dusky spots.

Smooth Dab. *Br. Zool.* n. 105. *Ray syn. pisc.* 162. f. 1.

Body a foot and a half long, 11 inches broad, light brown obscurely spotted with yellow: head small: eyes near each other: mouth filled with small teeth: lateral-line much curved over the pectoral fin: *dorsal-fin* 79-rayed.

51. *Pl. Flesus*. Brown, with the lateral-line rough: at the base of the fins a series of asperities.

Flounder. *Bloch* t. 44. *Donovan* t. 94.

Body growing to 5 or 6 pounds weight, covered with thin oblong scales, above dull brown with lighter or rosy variations, beneath dirty-white: mouth small, the lower-jaw longer: gill-covers ending in an obtuse spine; lateral-line with a row of small spines, curved over the pectoral fin: fins mostly spotted with black, between the anal and ventral a strong spine; *dorsal-fin* 55-rayed; *pectoral* 11; *ventral* 6; *anal* 39; tail a little rounded, 18-rayed.

2. Body rose-colour, with pale yellow-brown fins.

Rose-coloured Flounder. *Shaw Zool.* iv. t. 43\*.

Body about 9 inches long, with a slight yellowish tinge in some parts, in others with silvery white, beneath nearly white, without scales, but marked with minute scale-like reticulations, and without roughness: lateral-line nearly straight: *dorsal-fin* 60-rayed; *pectoral* 12; *ventral* 7; *anal* 42; tail a little rounded, 20-rayed.

52. *Pl. Solea*. Brown, oblong, with rough scales: upper-jaw longer: upper pectoral fin tipped with black.

Solé. *Donovan's Fishes* t. 62. *Bloch* t. 45.

Body sometimes growing to 2 feet long, above olive-brown, beneath white, covered with small oblong scales ending in numerous spines: jaws bearded with small white cirri, the upper lunate, lower with small moveable teeth: gill-cover rounded of one piece: lateral-line straight, nearer the back: vent nearer the head: rays of

the dorsal and anal fins covered with scales nearly to the middle: dorsal-fin 97-rayed; pectoral 10; ventral 8; anal 83; tail rounded, 17-rayed.

53. Pl. *Arnoglossus*. White, transparent, very thin, with small very deciduous scales.

Smooth Sole. Pennant Brit. Zool. iii. p. 233. n. 108.

B. Eyes both on the left side of the head.

54. Pl. *tuberculatus*. Body nearly circular, grey-brown with blackish variations, rough with horny tubercles.

Turbot. Donovan's Fishes t. 46. Shaw Zool. iv. t. 45.

Body growing to a large size, covered with obtuse spinous tubercles: head broad, lower-jaw longer: lateral-line in the middle, arched over the pectoral-fin: fins yellowish, with black marks: dorsal-fin 60-rayed; pectoral 12; ventral 6; anal 43; tail rounded, 17-rayed.

55. Pl. *Rhombus*. Rhombic, brown with dusky and white spots, smooth: 4 first rays of the dorsal-fin ramified, with the membrane lacerated between each branch.

Pearl, Brill. Sowerby Brit. Miscel. t. 50. Donovan t. 95.

Body resembling the Turbot, but is of a smaller size, and without the spinous tubercles; the scales are also larger: dorsal-fin 71-rayed; pectoral 12; ventral 6; anal 57; tail rounded, 16-rayed.

56. Pl. *Megastoma*. Oblong, livid-brown with black marks: mouth large, the lower-jaw protruded: lateral-line much curved over the pectoral-fin.

Whiff. Donovan's Fishes iii. tab. 51.

Body thick, with large rough scales: head elongated: tongue subulate-conic, white: iris yellowish, pupil black: mouth full of small teeth: fins wider in the middle, spotted with black; dorsal-fin 85-rayed; pectoral 13; ventral 5; anal 61; tail rounded, scaly at the base, 19-rayed.

57. Pl. *Cyclops*. Brown with dusky ocellate spots: dorsal and anal-fins pointed in the middle: left eye placed in the angle of the head, and visible on both surfaces of the body.

Cyclops Flounder. Donovan's Fishes tab. 90.

Body roundish, smooth, brown with dusky spots inclosed in a whitish circle: lateral-line much curved over the pectoral-fin: middle-rays of the dorsal and anal-fins longer than the rest, and ending in a point: left eye vertical, and visible on the under side of the body: dorsal-fin 66-rayed; pectoral 11; ventral 7; anal 52; tail rounded, 16-rayed.

## 18. SPARUS. Gilthead.

58. Sp. *Aurata*. Over the eyes 2 pale semilunar spots edged with gold: behind the head each side a blackish-purple round spot intersected by the lateral line.

Lunulated Gilthead. Donovan t. 89. Bloch t. 266.

Body growing to 6 or 8 pounds weight, silvery inclining to red on the back: iris silvery: head glossed with gold, especially at the lower sutures of the gill-covers: tail with sometimes a black spot near it: dorsal-fin 24-rayed; pectoral 11; ventral 6; anal 14; caudal 16-rayed.

59. *Sp. Pagrus*, Rose-red, with longitudinal stripes of a deeper red : near the gill covers each side 2 black spots.

Red Gilt-head. *Br. Zool.* n. 113. *Bloch* t. 267.

Body about the size of the last, covered with large scales ; eyes large, silvery : skin at the end of the dorsal and anal fins gathered up and hiding the last rays : mouth and tongue fine red : belly silvery, slightly marked with longitudinal yellowish streaks ; tail forked.

60. *Sp. Dentex*. Body reddish varied with brown : in each jaw 4 teeth larger than the rest.

Four-toothed Gilt-head. *Donovan's Fishes* t. 73.

Body growing to a large size, varying much in colour, sometimes spotted and streaked with black : back reddish : tail scaly at the base : dorsal-fin 20-rayed ; pectoral 12 ; ventral 5 ; anal 10 : caudal 19-rayed.

61. *Sp. niger*. Above black, beneath silvery : back with a silvery stripe along the base of the dorsal-fin : dorsal and anal-fins clothed with silvery scales.

Toothed Gilt-head. *Br. Zool* t. 43. *Linn. Trans.* 7. p. 292.

Taken in Swansea Bay Nov. 12, 1806.

Body 2 feet long, 9 inches deep, very much compressed, rounded on the forepart of the back, covered with large firm angular scales placed in an hexagonal manner : head much rounded and sloping in front : mouth oblique downwards : jaws nearly equal : teeth a single row of incurved larger-ones and a row or two of smaller-ones in each jaw, besides a short longitudinal mass of obtuse ones on each side in the palate of the upper-jaw : eyes very large, distant ; iris white : gill-covers of 2 pieces ; the apertures very large, membrane 7-rayed : lateral-line obsolete : vent in the middle, between the ventral and anal-fins : fins all covered with silvery scales at the base : dorsal falcate, the first 7 rays very high, 34-rayed, and like the anal clothed with silvery imbricate scales placed longitudinally ; the rays ending in short fascicular processes : pectoral pointed, 20-rayed : ventral pointed, 6-rayed, with a smaller supplemental one at the sides covered with silvery scales : anal somewhat falcate, 28-rayed : the rays ending in short fascicular processes : tail black, forked, with pointed lobes, 24-rayed.

## 19. LABRUS. Wrasse.

62. *L. gibbus*: Variegated blue and orange : dorsal and anal-fins green spotted with black.

Gibbous Wrasse. *Penn. Brit. Zool.* iii. t. 46.

Body about 8 inches long, size of a perch, but more gibbous on the back, covered with large scales : head sloping ; above each eye a dusky semilunar spot : first gill-cover finely ferrate : pectoral-fins yellow, transversely striped with red at the base : ventral and caudal sea-green : dorsal-fin 25-rayed ; pectoral 13 : ventral 6 : anal 13 ; tail large, 15-rayed.

63. *L. Tinca*. Yellowish, variegated with blue, and spotted with red : fins red, spotted with white : lips reflected : dorsal-fin ramentaceous.

Ancient Wrasse, Old Wife. *Br. Zool.* t. 44. *Donov.* t. 83.

Body 15-18 inches long, of a rather bulky form, with a dusky hue on the back, and variegated with blue red and yellow : fins edged with brown : lips large, reflected, retractile : teeth in 2 rows, the first row conic : gill-covers with radiate depressions under the scales : above the nose a deep furrow : throat with two tubercled bones above, and one below : dorsal-fin 36-rayed ; pectoral 14 ; ventral 6 ; anal 12 ; tail 14-rayed.



64. *L. Julis*. Back green, sides blackish with a longitudinal indented fulvous stripe : 2 front-teeth longer.

Indented striped Wrasse. *Donovan's Fishes*, t. 96.

Body 7 or 8 inches long, elongated, changeable blue-green with the indented stripe fulvous and silvery, belly silvery : jaws equal : dorsal-fin with a black spot at the top, 22-rayed ; pectoral 12 ; ventral 6 ; anal 15 ; tail 13-rayed.

65. *L. variegatus*. Red with 4 longitudinal greenish-olive stripes each side, and as many blue-ones.

Striped Wrasse. *Br. Zool.* iii. t. 45. *Donovan* t. 21.

Body oblong, about 10 inches long, covered with large scales : lips large, doubled : gill-membrane 5-rayed, the covers grey striped with yellow : throat almost yellow : at the base of the pectoral-fins a dark olive spot : dorsal-fin marked at the beginning with a broad band of rich blue, the middle part white, the rest red : anal and ventral-fins edged with blue : dorsal-fin 31-rayed ; pectoral 15 ; ventral 6 ; anal 15 ; tail blue on the upper half, yellow on the lower.

66. *L. bimaculatus*. Grey, with a brown rounded spot each side on the middle of the body, and another near the tail.

Bimaculated Wrasse. *Penn. Brit. Zool.* iii. p. 247. n. 117.

Body rather deep, of a light colour : gill-membrane 6-rayed : lateral-line curved : dorsal-fin 26-rayed ; pectoral 15 ; ventral 6 ; anal 12.

67. *L. trimaculatus*. Red, with large scales, and 3 black spots towards the end of the back.

Trimaculated Wrasse. *Br. Zool.* t. 46. *Donovan's Fishes* t. 49.

Body oblong, about 12 inches in length, above orange-red, paler beneath, with 4 rose-coloured spots alternating with the black ones : gill-membrane 5-rayed : fins some of them edged with blue : lateral-line nearly straight : dorsal-fin 30-rayed ; pectoral 16 ; ventral 6 ; anal 14 ; tail 14-rayed.

68. *L. Comber*. Slender, red, beneath yellow : beneath the lateral-line a longitudinal silvery stripe.

Comber Wrasse. *Br. Zool.* iii. p. 252. t. 47.

Back, fins, and tail red : belly yellow : silvery-stripe parallel, smooth, even : dorsal-fin 31-rayed ; pectoral 14 ; ventral 5 ; anal 10.

69. *L. Coquus*. Slender, purple and dark blue, beneath yellow.

Cook Wrasse. *Br. Zool.* iii. n. 123. *Ray. Pisc.* 163. f. 4.

Body resembling the last : back purple and dark blue : belly yellow.

70. *L. cornubicus*. Variegated green brown and yellow : near the tail a round brown spot : anal-fin yellow, obliquely barred with brown.

Coldfinny. *Donovan's Fishes* tab. 72. *Br. Zool.* iii. t. 47.

Body about a palm long, shaped like *L. Tinca* : lips doubled ; jaws and gill-covers rich yellow : belly yellowish-white : dorsal-fin greenish, with dusky clouds : pectoral and ventral-fins yellowish-white : dorsal-fin 25-rayed ; pectoral 12 : ventral 7 ; anal 13 ; tail green, 14-rayed.

71. *L. lineatus*. Greenish beneath yellowish, with numerous parallel longitudinal yellowish lines.

Streaked Wrasse. *Donovan's Brit. Fishes*, tab. 74.

Body 7 inches long, with green head back and fins, the sides pale : iris yellow, pupil black : lateral-line curved : dorsal-fin 30-rayed : pectoral 14 ; ventral 8 ; anal 11 ; tail 15-rayed.

20. PERCA. *Perch.*A. *With 2 distinct dorsal-fins.*

72. *P. fluviatilis*. Brownish-olive, with short dusky transverse bands on the sides: dorsal-fins pale violet-brown, the rest red.

2. Back much raised, curved and distorted near the tail.

Common Perch. *Br. Zool.* iii. t. 48. *Donovan* t. 52.

Body sometimes growing to a large size, with a gilded tinge on the sides, whitish towards the belly; nostrils near the eyes, double, with 4 pores before them: mouth large: jaws nearly equal: teeth small, in the jaws and on the roof; tongue short, smooth: first dorsal-fin with 15 spinous rays, marked with a roundish black spot accompanied with a smaller one; second with 15 soft rays: pectoral 14; ventral 8; anal 12; tail a little forked, 21 rayed.

73. *P. Labrax*. Back dusky with a blue tinge, belly silvery: second dorsal-fin with 14 rays.

*Basse*. *Br. Zool.* iii. t. 49. *Donovan's Fishes* t. 43.

Body shaped like a salmon, and growing to the weight of 15 pounds; mouth large, filled with small teeth, with a triangular rough space in the roof: eyes large, reddish, iris silvery; when young the space above it is marked with small black spots; gill-covers ending in a sharp point: dorsal-fins brown, the first 9-rayed, second 14; pectoral brownish, 18-rayed; ventral reddish-white, 6-rayed; tail slightly forked, brown, 21-rayed.

B. *With a single dorsal-fin.*

74. *P. cernua*. Olive-brown with blackish dots: dorsal-fin 27-rayed, the first 15 of which are spinous.

*Ruffe*. *Donovan's Fishes* t. 39. *Shaw zool.* iv. t. 79.

Body about 6 inches long, slender, mucous, yellowish-olive on the sides, blackish on the nape and back, whitish on the breast and belly, covered with numerous dusky spots on the body pectoral dorsal and anal fins: lateral-line a little curved: head thick, flattish: eyes large, pupil blue, iris brown with a yellow mark: jaws equal: fins yellowish; dorsal 27-rayed; pectoral 13; ventral 6; anal 7; tail sharply-forked, 19-rayed.

21. SCOMBER. *Mackrel.*

75. *Sc. Scomber*. Blue green, with numerous transverse black lines: belly silvery: 5 spurious fins above and below.

Common Mackrel. *Br. zool.* iii. t. 51. *Shaw zool.* iv. t. 34.

Body 1-2 feet long, dark-green varied with blue and crossed with black bands above the lateral-line: head long: eyes large, covered at first with a white film; mouth large; the lower-jaw longer: tongue loose, pointed, smooth: teeth in both jaws and round the edge of the palate: gill-covers of 3 pieces, silvery: scales small, oval, transparent: lateral-line nearer to and parallel with the back, with generally some dusky spots along it: spurious-fins small, grey: dorsal-fins 12, 12-rayed; pectoral 20; ventral 6; anal 13; tail forked, 20-rayed.

76. *Sc. Colias*. Varied with rich green and blue: spurious fins 5 both above and below.

*Coly Mackrel*. *Will. ichth.* p. 182. *Syst. Nat.* p. 824.

Found frequently in the Weirs about Swansea, and very much resembles the last, except in size which seldom exceeds 6 or 7 inches in length. Its colours are much richer, and it does not appear to come in shoals.

77. *Sc. Thynnus*. Above brownish-blue, beneath silvery : spurious fins about 10, both above and below.

Tunny. *Br. Zool.* iii. t. 52. *Donovan* t. 5.

Body 3-10 feet long, a little convex above, becoming suddenly slender towards the tail where it becomes angular : head small ; iris pale green : tongue short, smooth : lower-jaw longer : gill-cover of 2 pieces : scales small, thin, deciduous : first dorsal-fin, concealed in a cavity on the back when closed, 14-rayed ; second falcate, 12-rayed : pectoral long, yellowish, 32-rayed : ventral short, grey, 6-rayed : anal yellowish, 13-rayed : tail grey, lunate, 30-rayed ; spurious-fins yellow.

78. *Sc. Trachurus*. Above blue-green, beneath silvery : upper gill-covers with a black spot : spurious fins united : lateral-line covered with wide imbricate prickly plates.

Scad. *Donovan's Brit. Fishes* i. tab. 3.

Body 12-18 inches long, covered with thin broad scales, a little prominent and carinate on the back : head large : jaws obtuse, the lower-one longer : tongue broad, thin, smooth : iris reddish-silvery : gill-cover of 2 pieces : fins whitish, the first rays of the first dorsal black : dorsal 8, 34-rayed ; pectoral 20 ; ventral 6 ; anal 30, with 2 spines before it ; tail lunate, 20-rayed.

## 22. GASTEROSTEUS. Stickleback.

79. *G. aculeatus*. Above olive, beneath silvery-red : back with 3 spines.

Three-spined Stickleback, Banistickle. *Br. Zool.* t. 50. *Don.* t. 11.

Body barely 2 inches long : head compressed, sloping : eyes large, prominent ; iris silvery : sides silvery, square near the tail : chin and breast sometimes fine red : belly prominent : lateral-line rough, near the back : fins yellowish ; dorsal near the tail, 12-rayed ; pectoral 10 ; ventral a plate with 2 unequal spines ; anal 9, one of them spinous ; tail even 12-rayed.

80. *G. Pungitius*. Olive, beneath silvery : back with about 10 spines.

Ten-spined Stickleback. *Br. Zool.* t. 50. *Donov.* t. 32.

Body about an inch and a half long, with the dorsal spines crossing each other, and amounting sometimes to 11, sometimes only 9 : sides not speckled, yellowish ; dorsal-fin 10-rayed ; pectoral 10 ; ventral of one spine ; anal 10 ; tail a little rounded, 12-rayed.

81. *G. Spinachia*. Olive spotted with black : along the sides of the jaws a silvery stripe : lateral-line prominent, shielded : back with 15 spines.

Fifteen-spined Stickleback. *Brit. Zool.* t. 50. *Donovan* t. 45.

Body 6 or 7 inches long, very slender and lanceolate towards the tail : head lengthened, cylindrical ; lower-jaw longer : iris silvery : trunk somewhat 5-sided : lateral-line composed of a row of plates ; dorsal-spines placed in a cavity and bent back : dorsal-fin 7-rayed ; pectoral oblong, 10 ; ventral of 2 spinous rays : anal with a spine before it ; tail rounded, with an elevated line above and beneath, 12-rayed.

## 23. MULLUS. Surmullet.

82. *M. barbatus*. Red, with an olive tinge above and a silvery one beneath.

Red Surmullet. *Pennant Br. Zool.* iii. p. 271. n. 135.

Body 12-15 inches long, covered with thin deciduous scales, under which it is of a bright red : lower-jaw with 2 cirri : dorsal-fins 7, 9-rayed ; pectoral 15 ; ventral 6 ; anal 7 ; tail 16-rayed.

83. *M. Surmulletus*. Red, with 2 or 3 longitudinal yellow stripes each side.

Striped Surmullet. *Br. Zool. t. 53. Donovan t. 12.*

Body about a foot long, a little silvery beneath: scales silvery with tawny lines: eyes round; pupil blue, surrounded with a red ring; iris silvery: upper gill-cover ending in a soft blunt elongation: lateral-line arched with the back; fins yellowish, with the rays mostly red: lower-jaw with 2 beards: dorsal-fins 7, 9-rayed; pectoral 16; ventral 7; anal 8; tail forked, 20-rayed.

#### 24. TRIGLA. Gurnard.

84. *T. Gurnardus*. Throat with 3 appendages: above grey with whitish and dusky spots, beneath silvery: lateral-line clothed with rounded whitish scales.

Grey Gurnard. *Br. Zool. t. 54. Donovan t. 30. Shaw Zool. t. 90.*

Body 1-3 feet long, covered with small white scales: above the eyes 2 short spines each side: iris silvery: nose sloping, slightly forked, with 3 short spines each side: gill-covers radiate, ending in a point: vent nearer the head: rays of the fins longer than the membrane: dorsal-fins 7, 19-rayed, the first grey spotted with white, the second reddish-ash; pectoral dark-grey, 10-rayed; ventral whitish, 6; anal reddish-ash, 20; tail lunate, dark grey, 14-rayed.

85. *T. Lyra*. Throat with 3 appendages: red, beneath silvery: nose 2-lobed, with 3 spines each side.

Piper. *Br. Zool. t. 55.*

Body about 2-feet long: upper-jaw much longer than the lower; on the inner corner of each eye a strong spine, the plates of the head ending each side in another, and a large one over the pectoral-fins: back ferrate with sharp spines: dorsal-fins yellowish with red rays, 10, 18-rayed; pectoral slightly tinged with blue, 12-rayed; ventral yellowish with red rays, 6-rayed with a spine; anal 18, the first spinous; tail lunate, tinged with blue.

86. *T. Cuculus*. Throat with 3 appendages: red, beneath silvery: first dorsal-fin with a black spot.

Red Gurnard. *Br. Zool. t. 57. Shaw Zool. t. 90.*

Body about a foot long, more or less marked with whitish transverse bands, covered with minute scales: nose with 3 spines each side: lateral-line with broad silvery scales edged with black, and another row each side the back: dorsal-fins 9, 16-rayed, the second with a yellowish edge; pectoral 10; ventral 6; anal 16; tail lunate, 13-rayed.

87. *T. Hirundo*. Throat with 3 appendages: grey-brown, beneath silvery: pectoral-fins very large, olive-green, spotted and edged with rich blue.

Sapphirine Gurnard. *Br. Zool. t. 56. Donovan t. 1.*

Body a foot or more long, tinged with red at the sides: lateral-line rough: eyes with 2 spines at the inner corner of each: nose cloven, spinous: vent near the head: dorsal-fins with 9, 17 simple rays; pectoral 9 branched rays; ventral 6, branched; anal 14, simple; tail brownish, slightly lunate, 16-rayed.

88. *T. lineata*. Throat with 3 appendages: red, beneath white, with numerous ridges across the sides.

Streaked Gurnard. *Br. Zool. t. 57. Donovan t. 4.*

Body about a foot long: head large, suddenly sloping, radiate on the sides: nose cloven, with short spines: back ferrate: lateral-line plated: fins with dusky spots: dorsal 10, 17-rayed; pectoral 10; ventral 6; anal 15; tail slightly lunate, 16-rayed.



ORDER IV. ABDOMINALES. *ABDOMINAL.*25. COBITIS. *Loche.*

89. *C. Barbatula*. Yellowish-grey, with dusky variations : unarmed, compressed, with 6 beards.

Common Loche. *Br. Zool. t. 58. Donovan t. 22.*

Body 3 or 4 inches long : head sloping, obtuse, with 4 beards on the upper-lip and one at each angle of the mouth : upper-jaw a little longer : lateral-line straight : dorsal-fin spotted, 9-rayed ; pectoral spotted, 11-rayed ; ventral white, 8 ; anal white, 7 ; tail broad, spotted, 19-rayed.

90. *C. Tænia*. Yellowish-grey, with dusky spots : head compressed, with a forked spine beneath each eye, and 6 beards.

Groundling. *Bloch i. p. 216. tab. 31. f. 1.*

Found in the clear streams of Wiltshire with the last, from which it principally differs, in being something larger, and in having a double spine each side the head a little before the eyes.

26. SALMO. *Salmon.*

91. *S. Salar*. Silvery-grey, with blackish or grey spots : lower-jaw of the male ending in an incurved elongation : tail forked.

Salmon. *Br. Zool. t. 58. Shaw Zool. t. 102.*

Body 2-4 feet long, blackish in front and on the cheeks : eyes small, iris silvery : jaws of the male more or less incurved : tongue with 6 or 8 recurved teeth : fleshy-fin and lateral-line black : ventral-fins with an appendage at the base : dorsal-fin 14-rayed ; pectoral 14 ; ventral 10 ; anal 13 ; caudal 21-rayed.

92. *S. Eriox*. Deep silvery-grey, with purplish-grey spots : lower-jaw a little longer : tail nearly even.

Shewen. *Br. Zool. iii. p. 225. n. 144. Donovan t. 91.*

Resembles the last but is smaller and the flesh is paler : jaws of the male very slightly incurved ; belly silvery ; dorsal-fin spotted, the rays above the membrane, 12-rayed ; pectoral 14 ; ventral 10 ; anal 12 ; tail 24-rayed.

93. *S. Trutta*. Purplish-grey, with black drop-like spots on the head body and dorsal-fin.

Salmon Trout. *Bloch i. p. 143. tab. 21.*

Body smaller than the Salmon, covered with small round dusky spots surrounded by a paler circle : jaws equal : tail slightly cloven : dorsal-fin 14-rayed ; pectoral 14 ; ventral 9 ; anal 10 ; tail 20-rayed.

94. *S. Fario*. Yellowish-grey, with purple or red spots : lower-jaw a little longer than the upper.

2. Stomach very large. *Gillaroo Trout. Sow. Mif. t. 61.*

Body about a foot long, narrow, olive above the lateral line, yellow beneath it, belly white : cheeks yellow and green : iris white, with a femilunar blackish edge : fins purplish-yellow, the dorsal spotted, the fleshy-one brown tipped with red, the ventral with a pointed appendage : dorsal-fin 13-rayed ; pectoral 13 ; ventral 9 ; anal 9, edged with white : tail slightly forked, 25-rayed.

95. *S. Phinco*. Silvery-grey, with very splendid belly : dorsal-fin spotted with black : tail black, forked.

White Salmon. *Penn. Brit. Zool. iii. p. 302. n. 147.*

Body about a foot long, of an elegant form, with the back straight, above dusky and silvery intermixed, beneath of an exquisite silvery

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whiteneſs : *upper-jaw* a little longer, with two rows of teeth, one in the lower, and 6 on the tongue : *dorsal-fin* 11-rayed ; *pectoral* 13 ; *ventral* 9 ; *anal* 9 ; *tail* much forked.

96. *S. Salmulus*. Blueish-grey, with diſtant reddiſh ſpots : *tail* forked.

Samlet. *Brit. Zool. n.* 148. *Shaw Zool. v. p.* 55.

*Body* 6 or 7 inches long, deeper than the Trout with a narrower head and leſs mouth, marked with ſeveral duſky ſpots or tranſverſe bars, with fewer ſpots and not ſo light : *pectoral-fins* with generally one large black ſpot : *fleſhy-fin* not tipped with red, nor the anal edged with white : *tail* much more forked than in the trout.

97. *S. Salvelinus*. Purpliſh-grey, ſpotted with red : *lower-fins* and belly ſcarlet.

Red Charr. *Er. Zool. n.* 149. *Shaw Zool. v. t.* 105.

*Body* about a foot long, ſlender, browniſh-blue on the back, ſilvery on the ſides : *jaws* nearly of equal length ; *tongue* looſe, and like the *palate* with two rows of teeth : *ſpots* on the ſides with ſometimes a pale margin : *first ray* of the *ventral* and *anal-fins* white : *fleſhy-fin* tipped with brown : *dorsal-fin* 13-rayed ; *pectoral* 14 ; *ventral* 9 ; *anal* 12 ; *tail* forked, 24-rayed.

98. *S. alpinus*. With red and duſky ſpecks : back dark-olive, ſides blueiſh, belly fulvous : *gill-covers* a little gilt : *dorsal-fin* ſpotted.

Alpine Salmon. Charr. *Er. Zool. t.* 60. *Donovan t.* 61.

*Body* about a foot long, ſpeckled with black and red on the back and ſides : *jaws* equal : *fins* reddiſh, except the *dorsal*, which is pale brown ſpotted with black ; the *fleſhy-one* edged with red : *dorsal-fin* 11-rayed ; *pectoral* 16 ; *ventral* 11 ; *anal* 10 ; *tail* ſlightly forked, 24-rayed.

99. *S. Eperlanus*. Back greeniſh-white, ſides varied with blue, belly ſilvery : head transparent : *anal-fin* with 17 rays.

Smelt. *Br. Zool. t.* 61. *Donovan t.* 48.

*Body* 6 or 7 inches long, ſlender, ſemitransparent : head ſmall, obtuſe ; the *under-jaw* longer and a little curved, with 4 large teeth in the upper : *palate* and *tongue* with 2 rows of teeth each : *eyes* ſilvery : *dorsal-fin* 11-rayed ; *pectoral* 12 ; *ventral* 8 ; *anal* oppoſite the *dorsal*, 14 ; *tail* forked, 21-rayed.

100. *S. Thymallus*. Grey, with longitudinal duſky-blue lines : *dorsal-fin* violet with brown bars.

Grayling. *Er. Zool. t.* 61. *Donovan t.* 88.

*Body* about 18 inches long, rather ſlender, ſilvery-grey with numerous dark lines : head obtuſe, duſky above, greeniſh at the ſides : the *upper-jaw* longer : *gill-covers* gloſſy-green : *eyes* prominent ; *iris* ſilvery dotted with yellow : *teeth* very minute : *tongue* ſmooth : back arched ; *lateral-line* with duſky dots : *lower-fins* and *tail* ruſous-brown : *dorsal-fin* 23-rayed ; *pectoral* grey, 12 ; *ventral* 7 ; *anal* 11 ; *tail* forked, 19-rayed.

101. *S. Lavaretus*. Above purpliſh-blue, beneath ſilvery with a gold tinge : *scales* broad : *upper-lip* projecting in a noſe-like form.

Gwiniad. *Br. Zool. t.* 62. *Shaw Zool. v. t.* 105.

*Body* hardly a foot long, thicker than the trout : head ſmall, tapering, ending in a blackiſh kind of probociſs : *mouth* ſmall, without viſible teeth : *eyes* moderate, pupil deep blue, *iris* ſilvery ; *cheeks* and *gill-covers* varied blue and yellow : *lateral-line* compoſed of 45 diſtinct duſky ſpots : *scales* large, notched in the middle : *dorsal-fin* 14-rayed ; *pectoral* yellowiſh, 18 ; *ventral* 12 ; *anal* 15 ; *tail* much forked, 20-rayed.

## 27. ESOX. Pike.

102. *E. Lucius*. Olive-grey with yellowish spots, belly white spotted with black: jaws depressed, nearly equal.

Pike. *Brit. Zool.* t. 63. *Shaw Zool.* v. t. 108.

Body lengthened, sometimes growing to a vast size, blackish on the back; head flattened; upper-jaw broad, a little shorter; lower slightly turned up at the end and covered with small punctures: iris golden, pupil bluish: teeth in the jaws alternately fixed and moveable, with 3 longitudinal rows on the palate; dorsal anal and caudal-fins spotted with black: dorsal-fin 21-rayed; pectoral 15; ventral 11; anal 18; tail forked, 19-rayed.

103. *E. Saurus*. Blueish-green, beneath silvery: jaws subulate, gaping in the middle, of equal length: above and beneath 6 spurious-fins near the tail.

Saury Pike. *Br. Zool.* t. 64. *Linn. Trans.* 7. p. 6c. t. 5.

Body about 11 inches long, tapering like an eel; jaws very slender, about an inch long, of equal length, the upper one a little incurved: pectoral and ventral-fins small: dorsal and anal opposite, shallow, continued down to the tail into 6 other smaller fins: tail much forked.

104. *E. Osseus*. Greenish, with pale red belly and fins, covered with square long scales: jaws very long, the upper longest.

Great Gar-fish. *Bloch* t. 390.

Taken on the Sussex Coast. *Berkenhout* p. 81.

Body 2 feet long, nearly cylindrical, covered with bony scales disposed in oblique rows, except on the head and gill-covers; each scale marked into 4 triangular spaces: gill-covers pale red, radiate: jaws with sharp unequal teeth along the edges, 3 smaller-ones succeeding every larger-one: eyes large; iris yellow: fins all with the first ray doubly serrate: back with a row of sharp scales: dorsal-fin opposite the anal and near the tail, spotted with black, 6-rayed: pectoral 11; ventral 6; anal spotted, 5; tail rounded, spotted, 12-rayed.

105. *E. Belone*. Blue-green, beneath, silvery: jaws very long and taper, the lower one longest.

Gar Pike, Sea Needle. *Br. Zool.* t. 63. *Donovan* t. 64.

Body 2 or 3 feet long, nearly cylindrical, taper: jaws sharp-pointed, with numerous nearly equal teeth along the edges: mouth purple on the inside: eyes large; iris silvery: belly flat, bounded each side by a rough line: dorsal-fin 14-rayed, near the tail and opposite the anal; pectoral 13; ventral 7, the first ray spinous; anal 19; tail much forked, 23-rayed. The bones are green when the fish is boiled.

## 28. ARGENTINA. Argentine.

- 106 *A. Sphyræna*. Bright-silvery, greenish on the back: anal-fin with 9 rays.

Pearl Argentine. *Br. Zool.* iii. p. 327. tab. 65.

Body 2 or 3 inches long, compressed, nearly of equal depth: head purplish: mouth small, with minute teeth: eyes large, iris silvery: lateral-line in the middle, nearly straight: air-bladder shining like polished silver: dorsal-fin placed near the equilibrium of the body, 10-rayed; pectoral 14; ventral 11; anal 9; tail forked.

## 29. ATHERINA. Atherine.

107. *A. Hespetus*. Yellowish, pale-olive on the back, semitransparent, reticulate with lines of blackish dots.

European Atherine. *Br. Zool. t. 65. Donovan. t. 87.*

*Body* 5 or 6 inches long, elegantly reticulate with brown specks, a little prominent on the belly, covered with large scales: *crown* broad, sloping: *iris* with a brown spot above: *jaws* with numerous small teeth: *gill-covers* silvery: *sides* with a broad polished silvery stripe from the gills to the tail, through the middle of which is the *lateral-line* which is straight, impressed, and has a row of black dots beneath it: *dorsal-fins* 8, 11-rayed; *pectoral* 13; *ventral* 6; *anal* 10-14; *tail* forked, 15-rayed.

### 30. MUGIL. *Mullet.*

108. *M. Cephalus.* Silvery-grey, dusky on the back: sides with numerous longitudinal blackish lines: first dorsal-fin 4-rayed.

Common Mullet. *Br. Zool. t. 66. Donovan t. 15.*

*Body* 14 or 15 inches long, a little convex on the back and protuberant on the belly: *head* flattened, taper: *mouth* small: *tongue* rough: *pupil* black, encircled with a small silvery line; *iris* hazel above, silvery below: *belly* silvery: *fins* bluish: *dorsal-fins* 4, 8-rayed; *pectoral* 17; *ventral* 7; *anal* 9; *tail* forked, 14-rayed, and 2 very short ones each side.

### 31. EXOCETUS. *Flying-fish,*

109. *E. volitans.* Silvery, brownish on the back: ventral-fins placed before the middle of the belly.

Oceanic Flying-fish. *Br. Zool. t. 67. Donovan. t. 31.*

*Body* 12 or 14 inches long, flat on the back, and carinate each side on the belly, rounded and taper: *head* large, obtuse: *scales* large: *dorsal-fin* near the tail, 14-rayed; *pectoral* pointed, nearly as long as the body, 15-rayed; *ventral* slightly lunate, 6; *anal* opposite the dorsal, 13; *tail* forked, with unequal lobes, 15-rayed.

### 32. CLUPEA. *Herring.*

110. *Cl. Harengus.* Silvery, dusky-green on the back: lower-jaw longer: anal-fin 17-rayed: scales easily deciduous.

Common Herring. *Br. Zool. t. 68. Shaw Zoo. v. t. 119.*

*Body* 10 or 12 inches long, a little convex on the back, with a reddish or violet spot on the gill-covers when alive: *head* small, taper: *iris* silvery: *scales* rather large and easily falling off: *fins* cinereous, the dorsal placed behind the centre of gravity, causing the head to fall down when held by it: *lateral-line* hardly visible: *belly* sharply carinate, but hardly serrate: *dorsal-fin* 18-rayed; *pectoral* 18; *ventral* 9; *anal* 17; *tail* 18-rayed.

111. *Cl. Pilcardus.* Silvery, dusky-green on the back: lower-jaw rather shorter, the upper ascending: dorsal-fin placed in the centre of gravity: scales very large, adhering firmly.

Pilchard. *Br. Zool. t. 68. Donovan t. 69. Shaw v. t. 119.*

*Body* rather less than the Herring, thicker and more rounded, the back more elevated, and the belly not so sharp: *head* more obtuse: *dorsal-fin* 18-rayed; *pectoral* 16; *ventral* 8; *anal* 17; *tail* 32-rayed.

112. *Cl. Alosa.* Silvery, dusky on the back: along the sides a row of rounded black spots: belly serrate.

Shad. *Br. Zool. t. 69. Donovan. t. 57. Shaw v. t. 120.*

*Body* 2 or 3 feet long, dusky-green or bluish on the back, convex above and below: *snout* bifid; upper-jaw a little longer, toothed at the edge: *gill-covers* striate, silvery at the edge: *scales* large, deci-



## FISHES. ABDOMINALES. 33. Cyprinus. 107

duous: fins cinereous, the ventral with pointed appendages: dorsal-fin 20-rayed; pectoral 19; ventral 12; anal 21; tail with 2 dusky spots, 26-rayed.

113. *Cl. Sprattus*. Silvery, dusky-blue on the back: lower-jaw longer than the upper: belly strongly serrate.

Sprat. *Br. Zool.* iii. p. 346. *Bloch t.* 30. f. 2.

Body 4 or 5 inches long, much resembling the herring, but the body is deeper, the back-fin placed more behind, with only 16 or 17 rays, and the ventral with only 6 or 7, the belly strongly serrate, and with only 48 bones in the back: head pointed, blackish in front, lower-jaw a little longer and curved: eyes large, iris yellowish white: gill-covers silvery, radiate: keel of the belly curved: dorsal-fin 17-rayed; pectoral 16; ventral 7; anal 19; tail 18-rayed.

114. *Cl. Engrasicolus*. Silvery, greenish and semitransparent on the back: upper-jaw longer: belly not serrate.

Anchovy. *Donovans Fishes t.* 50. *Shaw Zool v. t.* 120.

Body about 3 or 4 inches long, slender, covered with thin deciduous scales: head long, the upper-jaw considerably longer: mouth very large, smooth within: tongue doubly ciliate each side: eyes large, iris silvery: fins transparent: belly smooth: dorsal-fin 15-rayed; pectoral 15; ventral 7; anal 14; tail 24-rayed.

### 33. CYPRINUS. Carp.

#### A. Mouth bearded.

115. *C. Barbus*. Bluish-white, olive on the back: mouth with 4 beards: second ray of the dorsal-fin serrate both sides: anal-fin 7-rayed.

Barbel. *Br. Zool. t.* 71. *Donov. t.* 29. *Shaw v. t.* 132.

Body growing to a large size, slender and taper: head taper, the upper-lip reddish and longer: iris pale brown: nostrils nearer the eyes: beards placed one on each side the upper-lip, and one at the corners of the mouth: lateral-line straight, dotted with black: fins reddish with a purple-brown cast; the ventral with an appendage: dorsal-fin 12-rayed; pectoral 13; ventral 11; anal 7; tail forked, 22-rayed.

116. *C. Carpio*. Yellowish-olive, whitish beneath: mouth with 4 beards: third ray of the dorsal-fin serrate behind: anal-fin 9-rayed.

Common carp. *Br. Zool. t.* 70. *Shaw, Zool. v. t.* 121.

Body 12-16 inches long, deep, with a wide dorsal-fin, blue-green on the back, covered with large scales which are longitudinally striate: head large, sloping, bearded like the Barbel: jaws nearly equal, with thick yellow lips: lateral-line slightly bent, dotted with black: fins violet-brown, the anal with a reddish tinge: dorsal-fin 25-rayed; pectoral 16; ventral 5; anal 9: tail slightly forked, 25-rayed.

117. *C. Gobio*. Pale olive-brown, silvery below: mouth with 2 beards: anal-fin 11-rayed: dorsal-fin and tail spotted with black.

Gudgeon. *Donovan t.* 71. *Bloch t.* 8. f. 2.

Body 5 or 6 inches long, thick, taper, sometimes spotted with black, livid on the back, blue above the lateral line: head obtuse, iris golden: mouth with a beard at each corner; the upper-jaw a little longer: lateral-line nearly straight: dorsal-fin opposite the ventral, 8-rayed; pectoral 15; ventral 8; anal 11; tail forked, 21-rayed.

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118. *C. Tinca*. Blackish-olive with a gilded tinge, mucous : mouth with 2 beards : anal-fin 11-rayed : tail nearly even.

Tench. *Brit. Zool.* iii. p. 359. *Bloch* t. 14.

Body 12 or 14 inches long, covered with a thick slime, and very small closely fixed scales, deep, with thick opaque violet fins : head large, broad, deep green, iris golden : chin white : jaws equal : lateral-line a little curved : belly whitish : dorsal-fin 10-rayed ; pectoral 16 ; ventral 9 ; anal 11 ; tail truncate at the base and straight in the middle, 19-rayed.

## B. Mouth beardless.

119. *C. Carassius*. Yellow-olive, with dusky-olive fins : 2 first rays of the dorsal-fin serrate : lateral-line straight : tail nearly entire.

Crusian. *Br. Zool.* n. 72. *Bloch* t. 11.

Body 8 or 10 inches long, very deep and thick, with a wide dorsal-fin : head small, obtuse, varied on the sides with yellow and green : iris silvery, surrounded with a golden ring : jaws with 5 broad teeth in each : back carinate before the fin : dorsal-fin 20-rayed : pectoral 12 ; ventral 9 ; anal 10 ; tail slightly lunate, 22-rayed.

120. *C. Brama*. Broad, arched, olive, beneath flesh-colour : fins brown, anal about 29-rayed.

Bream *Br. Zool.* t. 76. *Shaw* v. t. 124. *Donovan* t. 93.

Body 2 feet or more long, covered with large scales, very deep, with a small dorsal-fin : head truncate, reddish on the chin : mouth small, the upper-jaw a little protruded : iris pale yellow spotted with black : lateral-line bent down, dotted with black : ventral-fins with a conic process : dorsal-fin 12-rayed ; pectoral 17 ; ventral 9 ; anal 29 ; tail forked, 19-rayed.

121. *C. Erythrophthalmus*. Olive with a gilded tinge, paler below : iris orange : lower-fins red.

Rud. *Br. Zool.* t. 62. *Donov.* t. 40. *Bloch* t. 1.

Body 8 or 10 inches long, broad, covered with large scales, greenish above the lateral-line : head small ; jaws equal, the lower-one a little curved : teeth serrate, in 2 rows : nostrils large : back arched, carinate before the fin which is placed below the middle : lateral-line a little curved downwards, with about 30 raised dots : dorsal-fin greenish, edged with red, 11-rayed ; pectoral 19 ; ventral 10 ; anal 12-15 ; tail forked, 20-rayed.

122. *C. Rutilus*. Yellowish-silvery, dusky-green on the back : fins red ; anal fin 12-rayed.

Roach. *Donovan's Fishes* t. 67. *Bloch* t. 2.

Body much resembling the Rud, but is longer and slenderer, and the jaws have each a row of 5 compressed teeth : lips red : back a little arched : lateral-line bent down, with about 36 dots : dorsal-fin in the middle of the back 10-rayed ; pectoral 13 ; ventral 9 ; anal 12 : tail deeply forked, 22-rayed.

123. *C. auratus*. Splendid gold-red, with scarlet fins : anal-fin double, placed like the ventral : tail often 3 or 4-parted.

Golden Carp, Goldfish. *Shaw Zool.* v. t. 126. 127. *Edwards* t. 209.

Naturalized from China, and is found in great plenty in the ditches between Camberwell and London.

Body varying much in size, colour, and appearance of the fins, with large scales : head short, with equal jaws ; nostrils tubular : iris golden : gill-covers 2-leaved : lateral-line straight, nearer the back : dorsal-fin 20-rayed ; pectoral 16 ; ventral 11 ; anal 9 ; tail 27-rayed.

124. *C. Jases*. Silvery-bluish, olive on the back : head thick : snout rounded : anal-fin 14-rayed.

Chub. *Br. Zool.* t. 73. *Shaw Zool.* v. p. 226.

Body 14 or 16 inches long, thick, with ferruginous-brown fins : head truncate, dusky in front : eyes large, pupil glaucous, iris yellow : gill-covers blue-green : lateral-line straight, with about 58 dull yellow dots : dorsal-fin a little behind the ventral, 11-rayed : pectoral 16 ; ventral 9 ; anal 14 ; tail a little forked, 14-rayed.

125. *C. Leuciscus*. Silvery-yellow, olive on the back : dorsal-fin brown, 10-rayed, the rest reddish : anal-fin 11-rayed : tail much forked.

Dace. *Donovan t.* 77. *Shaw Zool.* v. t. 130.

Body from half a foot to a foot long, rather slender : head small : iris yellowish : jaws equal : back a little convex : ventral-fins with pointed appendages : lateral-line a little curved downwards : dorsal-fin 10-rayed ; pectoral 18 ; ventral 9 ; anal 11 ; tail 22-rayed.

2. Body slenderer : back straight : eyes red.

Grayling. *Br. Zool.* iii. p. 367. *Shaw Zool.* v. p. 234.

Resembles the Dace, and is about seven and a half inches long ; but the back is silvery with a bluish cast, and the ventral-fins redder : dorsal-fin 8-rayed ; pectoral 15 : tail 32-rayed.

126. *C. alburnus*. Silvery, olive on the back : anal-fin 20-rayed : tail much forked : lower-jaw longer.

Bleak. *Br. Zool.* n. 73. *Donov. t.* 18. *Shaw Zool.* v. t. 132.

Body 5 or 6 inches long, slender, compressed, covered with thin shining scales : head small : eyes large, pupil blue, iris silvery : back nearly straight, the fin placed farther back than the ventral : lateral-line a little curved downwards : dorsal-fin greenish, 10-rayed ; pectoral whitish with red specks, 14 ; ventral 9 ; anal grey, 20 ; tail greenish, 18-rayed.

*Obs.* The *White Bait*, which has hitherto been considered as a variety of this fish, appears by the judicious and accurate investigation of the Author of *British Fishes*, to be merely the young fry of the *Clupea Alosa*, or *Shad*. *Donovan's Brit. Fishes*, t. 98.

127. *C. Phoxinus*. Dusky green, varied on the sides with blue and yellow, belly reddish-silvery : tail with a dusky spot at the base : anal-fin 8-rayed.

Grayling. *Donovan t.* 60. *Shaw Zool.* v. t. 132.

Body 2 or 3 inches long, slender, varying in colours from blue, green, or red, to whitish : head short, jaws equal, red at the edges : eyes small, iris golden : lateral-line straight, golden : fins pale, with a red spot at the base : dorsal-fin 8-rayed ; pectoral 10 ; ventral 7 ; anal 8 ; tail forked, 19-rayed.

## ORDER V. CARTILAGINEI. CAR- TILAGINOUS.

### 34. PETROMYZON. Lamprey.

128. *P. marinus*. Olive, varied with brown and yellowish-white : fins dull orange : tail bluish, distinct from the second dorsal-fin.

Lamprey. *Brit. Zool.* t. 8. *Donov. t.* 81. *Shaw v. t.* 133.

Body about 3 feet long, with yellowish-white clouds : mouth large, oval, concave, with about 20 circular rows of triangular orange teeth : tongue short, lunate, edged with small teeth : eyes round, small, iris yellow, with 2 rows of small punctures near them : dorsal-fin below the middle of the back, shallow and rather rounded ;

the second close to it, and rather triangular: tail somewhat rounded.

129. *P. fluviatilis*. Dusky-blue, beneath silvery: fins violet; the second dorsal-fin angular and united to the tail.

Lampern. *Br. Zool.* iii. t. 8. *Donovan* t. 54.

Body 10 or 12 inches long, marked above with transverse undulate lines: mouth with 3 rows of teeth, the outer of which consists of a larger forked tooth each side, the second of 2 trifid ones, and the inner-row of 7 small ones with a detached double-one each side, and several irregular ones forward: iris golden: first dorsal-fin angular, and remote from the second; the second angular and connected with the tail which is rather pointed.

130. *P. branchialis*. Pale, beneath white, annulate: mouth lobed each side beneath: second dorsal-fin even, and connected with the tail.

Pride. *Br. Zool.* iii. t. 8. *Plot Oxfordsh.* p. 182. t. 10.

Body 7 or 8 inches long, and about the thickness of a Swan's quill, pale olive-green above, yellowish at the sides, white beneath, marked with annular worm-like-lines: mouth without teeth: second dorsal-fin not raised in the middle into an angular projection, and hardly a line broad: tail lanceolate, pointed.

### 35. GASTROBRANCHUS. Hag-fish.

131. *G. cæcus*. Livid, beneath paler: mouth with 8 beards.

Glutinous Hag. *Br. Zool.* iv. t. 20. *Shaw Zool.* v. t. 131.

Body 5 or 6 inches long, a little reddish towards the tail, carinate beneath, without eyes, nostrils, scales or lateral-line, very glutinous: mouth oblong, with 2 beards each side, and 4 at top, with a small spiracle furnished with a valve in front: teeth orange, in a double row each side like a pectinate bone, the upper-rows of 9 and the lower of 8, with a single curved tooth in the middle of the roof: belly with a longitudinal row of pores each side: tail with a narrow fin beginning from the lower-part of the back and reaching round to the vent.

### 36. RAJA. Ray.

#### A. Of a rounded shape.

132. *R. Torpedo*. Brownish, quite smooth, with scattered pores each side on the back.

Electric Ray. *Br. Zool.* iii. t. 10. *Donov.* t. 33. *Shaw.* v. t. 146.

Body 2 feet long or more, nearly circular, with sometimes 5 round dusky spots each side, beneath whitish: eyes small, near top, with a radiate orifice behind each: mouth small, with minute teeth: ventral-fins below the body, rounded: dorsal-fins 2, near the tail, obtuse: tail longish, even and oblique at the end.

#### B. Of a rhombic form, with sharp teeth.

133. *R. Batis*. Cinereous varied with black, beneath white dotted with black: back smooth: tail with a single row of spines.

Skate. *Brit. Zool.* iii. t. 9. *Shaw Zool.* v. t. 136.

Body growing to a large size, with numerous hooked spines round the eyes, and in the males the fins are full of spines: head pointed: iris semilunar, yellow edged with white: jaws covered with minute sharp teeth: ventral-fins lobed, 6-rayed; anal long, clavate, 6-rayed: tail pointed, with 2 fins near the end, and a sharp spine or two on the sides.



134. *R. Oxyrinchus*. Cinereous, with pale and dusky variations: snout elongated, pointed: back and tail with a single row of spinous tubercles.

Sharp-nosed Ray. *Shaw Zool.* v. p. 276. *tab.* 138.

Body 6 or 7 feet long, white beneath, with 3 spines round each eye, and many soft ones over the whole body: back with 10 spines, and often 2 larger-ones: fins and tail blackish red: ventral and anal short, somewhat falcate: tail clavate, fringed with 2 small membranous fins, with 2 fins near the end, and in the male often armed with a row of small spines each side.

135. *R. Fullonica*. Grey spotted with black: back covered with spines: eyes with a single row, and tail with a double row of spines.

Fuller's Ray. *Br. Zool.* iii. p. 86. n. 33. *Shaw* v. p. 275.

Body growing to a large size: snout pointed, the nictitant membrane fringed: teeth small, sharp: pectoral-fins with 3 rows of crooked spines above: tail slender, longer than the body with a double (triple, Penn.) row of spines. Is probably a variety of the next.

136. *R. Rubus*. Yellowish, with dusky spots: snout short, pointed: back with a single row, and tail with a triple row of spines.

Rough Ray. *Donovan's Brit. Fishes*, *tab.* 20.

Body growing large, with several other spines about the eyes and on the back, besides the row of larger-ones: eyes placed far back, pupil bluish, iris black: mouth wide, with numerous wedge-shaped teeth: ventral and anal-fins short, the former 3-rayed, the latter 6, and near these in the male are 2 long fin-like appendages: tail slender, nearly as long as the body with 2 fins, the last terminal.

137. *R. chagrinea*. Above grey-brown and tubercled: snout and tail with a triple row of spines.

Shagreen Ray. *Br. Zool.* iii. p. 87. *Shaw Zool.* v. p. 281.

Body growing large, covered with minute shagreen-like tubercles: snout long, sharp: pupil saffrine, with a semicircular row of spines at the corner: tail with 2 rows of slender small spines reaching a little up the back.

138. *R. Miraletus*. Grey-brown, spotted, with a large ocellate spot each side: eyes with a single row, and tail with a triple row of spines.

Mirror Ray. *Donov. Brit. Fishes* t. 103. *Shaw* v. t. 139.

Body about the size of the Thornback, grey-brown and rough above, with brown and blue spots: snout taper, pointed: pectoral-fins each marked with a large ocellate spot surrounded with a dark-brown ring, the iris of which is whitish or pale blue, the pupil dark-brown: eyes with a single row of spines on the inside: tail with two rounded-oblong fins at the end.

#### C. Body rhombic, with blunt teeth.

139. *R. clavata*. Yellowish-grey, spotted: snout rather pointed: body covered with clavate prickles, besides a single row of claw-like-ones down the back and tail.

Thornback. *Br. Zool.* t. 11. 12. *Donovan* t. 26. *Shaw* v. t. 139.

Body growing to 12 feet long, brownish with white spots, or whitish with dusky spots, tubercled, clothed with spines above and underneath, which when they fall off leave a white spot: belly crossed with a strong semilunar cartilage: head rather long, pointed: teeth small, round: iris semilunar, brown: tail longer

than the body, obtuse, with 2 fins near the end, and several clavate spines besides the claw-like-ones: *ventral-fins* pointed, 3-rayed; *anal* rounded, 6-rayed.

140. *R. Pastinaca*. Yellowish-olive, smooth: tail slender, pointed, without fin, armed near the middle with a long spine serrate both sides.

Sting Ray, Fire-flaire. *Br. Zool.* iii. p. 95. *Donovan* t. 99.

Body about 3 feet long, a little gibbous on the back, mucous, paler near the sides: *head* short, pointed: *iris* white: *teeth* granulate: *back* sometimes armed with a serrate spine: *ventral-fins* none; the pectoral-ones rather rounded: *spine* on the tail very long, flat, sharp, serrate in a reversed direction.

### 37. SQUALUS. Shark.

A. *With orifices on the temple, and anal-fin.*

141. *Sq. Canicula*. Rufous-grey, with dusky ocellate spots: nostrils surrounded with a lobe and vermiform appendage: *ventral-fins* distinct.

Spotted Dog-fish. *Br. Zool.* iii. t. 15. *Shaw* v. t. 152.

Body 3 or 4 feet long, white beneath: *head* small, rather pointed: *eyes* oblong, pupil sea-green: *iris* white: *nostrils* covered with a large angular flap: *mouth* wide, oblong, with 4 rows of teeth: *dorsal-fins* placed much behind, the second opposite the tail: *tail* narrow, obliquely truncate.

2. Lobes of the nostrils double. *Edwards Glean.* t. 289.

Body with larger and fewer spots: *snout* rather longer: *tail* a little shorter; *dorsal-fins* equal.

142. *Sq. Catulus*. Reddish-grey, with numerous small dusky spots: nostrils surrounded with a lobe and vermiform appendage: *ventral-fins* united.

Lesser spotted Dog-fish. *Br. Zool.* iii. t. 15. *Donov.* t. 55.

Body about 2 feet long, white underneath: *head* large, rather obtuse in front: *eyes* oblong, pupil black, *iris* white; *teeth* in 4 rows, serrate, tricuspidate, curved inwards: *dorsal-fins* placed far behind: *tail* small, slightly lunate, oblique.

143. *Sq. Galeus*. Cinereous, paler beneath: nose long, flat, pointed: teeth nearly triangular, serrate on the inner-edge.

Tope. *Iconst. pisc.* t. 8. f. 4. *Will. ichth.* t. B. 6. f. 1.

Body about 3 feet long or more: *nose* femitransparent beyond the nostrils: *nostrils* near the mouth, partly covered by a flap: *temporal-orifices* very small: *teeth* small, numerous, in 3 rows: *vent* before the middle of the body: *tail* large, 2-lobed.

144. *Sq. Mustelus*. Brownish, beneath whitish: teeth small, numerous, obtuse: pectoral-fins smaller than the dorsal, pointed.

Smooth Hound. *Br. Zool.* iii. t. 16. *Shaw* v. t. 153.

Body about 2 feet long, slender, sometimes varied with white spots, silvery beneath: *head* lengthened, a little sharpened, covered with mucous pores: first *dorsal-fin* large, nearly triangular, placed near the middle of the back; second twice as large as the anal which is square: *ventral* and *anal-fins* very small: *tail* forked, one of the lobes twice as long and slightly lunate.

145. *Sq. Vulpes*. Lead-colour, beneath whitish: head short, conic: upper-lobe of the tail as long as the body.

Long-tailed Shark, Sea-fox. *Br. Zool.* iii. tab. 14.

Body including the tail 13 feet long, covered with minute scales:

eyes large, placed near the corners of the mouth: *teeth* in 3 rows, sharp, compressed, not ferrate: first *dorsal-fin* large, triangular, in the middle of the back, with a triangular hollow behind it; the second opposite the anal and somewhat 2-lobed: upper lobe of the *tail* 6 times as long as the lower and slightly falcate at the end.

*B. with the anal-fin, but no temporal orifices.*

146. *Sq. glaucus*. Blue-green, slender, beneath white: snout conic, pointed: upper-lobe of the tail 3 times as long as the lower.

Blue Shark. *Shaw Zool. v. t. 151. Bloch t. 86.*

Body 8 or 10 feet long, very slender, smooth: eyes small, roundish; iris yellowish-white: mouth wide, placed far beneath: *teeth* in 3 or 4 rows, nearly triangular, sharp, not ferrate: vent near the tail: first *dorsal-fin* about the middle of the back, glaucous, nearly triangular: *pectoral* large, long, emarginate: *anal* white: *tail* glaucous, 2-lobed, the upper-lobe above twice as long as the lower and pointed.

147. *Sq. Cornubicus*. Deep blue, beneath white: body thick, round, depressed and angular towards the tail: snout conic, prominent: lobes of the tail nearly equal.

Probeagle Shark. *Borl. Cornw. t. 26. Linn. Trans. 3. p. 80. t. 15.*

Body about 4 feet long, with numerous small pores from the nose to the eyes each side: eyes large, pupil black, iris white: *nostrils* lunar: upper-jaw with 2 or 3 rows of teeth, the 2 middle-ones in front standing single; lower-jaw with a triple row in front, the inner-row bent inwards, the rest turned outwards: *teeth* sharp, 2-edged, with an acute process at the base both sides: *fins* bluish before, whitish behind: first *dorsal-fin* triangular, opposite the pectoral; the second, *ventral* and *anal* very small; between the ventral-fins a longitudinal aperture: *tail* lunate, the upper lobe a little longer, with a raised ridge each side the body near it, and a lunate hollow just above it with the points turning downwards.

2. *Beaumaris Shark*. *Br. Zool. iii. p. 118. tab. 17.*

Body entirely lead-colour, thicker and not tapering so much at the extremities: *tail* slightly lunate, with the horns unequal, and a transverse indentation above and below.

148. *Sq. Maximus*. Deep lead-colour, beneath white: teeth numerous, small, conic-subulate, not serrate.

Basking Shark. *Br. Zool. iii. t. 13. Shaw v. t. 149. 150.*

Body growing to a vast size, rough, tapering to both ends, the upper-jaw much longer and rather obtuse: *teeth* a little incurved at top: *dorsal-fin* very large, rather nearer the head, the second opposite the ventral: *anal-fin* very small: *tail* lunate, the upper horn much longer than the lower.

149. *Sq. Carcharias*. Pale-grey with rather acute snout: teeth triangular, serrate.

White Shark. *Shaw Zool. v. t. 148. Will. ichth. p. 47. t. B. 7.*

This most dreadful inhabitant of the ocean grows to a vast size: body rough, a little darker on the back: head depressed, broad, ending in a short and rather pointed snout: mouth vast, furnished with about 6 rows of strong moveable teeth: eyes oblong, greenish, half covered with a membrane: *nostrils* double, half covered with a membrane: *fins* rather dusky, the pectoral of vast size, nearly triangular and somewhat falcate: first *dorsal-fin* very large, before the middle of the body, rather rounded on the upper-part; the second before the anal, and placed midway between the ventral and

tail: *ventral* and *anal* small: *tail* 2-lobed, the upper lobe rather pointed, the lower somewhat rounded.

*C. Without the anal-fin.*

150. *Sq. Acanthias*. Grey-brown, beneath white: dorsal-fins with each a strong triangular spine before it.

Picked Dog-fish. *Donovan's Fishes*, tab. 82. *Bloch* t. 85.

*Body* 3 or 4 feet long, slender, sometimes with a few white spots: *head* flat, slender, obtuse in front; *eyes* lateral, oblong, bluish-white with a temporal orifice behind each, near which are 4 rows of moist pores: *nostrils* double: *teeth* numerous, small, sharp, in 2 or 3 rows; *fins* dusky: *tail* forked, pointed, the upper-lobe twice as long as the lower.

151. *Sq. Squatina*. Head flat, rounded in front: mouth terminal: nostrils bearded: down the back a prickly tubercled line.

Angel Shark. *Br. Zool.* t. 12. *Donov.* t. 19. *Shaw* v. t. 155.

*Body* growing to a large size, rough and pale grey above, white beneath: *head* nearly circular, broader than the body: *mouth* broad, with protrusile jaws: *teeth* sharp, in numerous rows: *tongue* broad, pointed, smooth, thin: *nostrils* placed at the edges of the jaws, covered with a membrane, and each with 2 beards before them: *eyes* small, glaucous, iris yellow, with a semilunar temporal orifice behind each: *pectoral-fins* very large, notched in front: *ventral* near them and rather less: *dorsal* small, both placed near the tail: *tail* slightly lunate, oblique.

38. CHIMÆRA.

152. *Ch. monstrosa*. Silvery, varied with brown above; snout with porous folds.

Sea Monster. *Shaw Zool.* v. t. 157. *Berkenh. syn.* p. 61.

*Body* 3 or 4 feet long, compressed, tapering to the tail: *head* large conical, with a fringed tuft-like process at top in the male: *mouth* with a pair of broad plates in each jaw, notched along the edge, with transverse undulations and pores reaching round the eyes and continued upwards along the side of the head, and branching off on the nape behind the eyes: *eyes* large; iris white, pupil glaucous, lateral-line whitish with brown edges: *fins* yellowish-brown with darker shades: first *dorsal-fin* triangular, with a long spine before it, serrate on the inside; second shallow; third close to this and running down the tail; *pectoral* and *ventral-fins* large, nearly triangular; the latter with a cylindrical rough process at the base of each in the male: *tail* continued into a slender filament, longer than the body.

39. ACIPENSER. *Sturgeon*.

153. *A. Sturio*. Grey with dusky variations, beneath white: body rough, with 5 rows of spinous tubercles: lips cloven.

Common Sturgeon. *Br. Zool.* t. 19. *Donov.* t. 65. *Shaw* t. 159.

*Body* growing to 18 or 19 feet long, slender, 5-sided, rough with small tubercles; *snout* lengthened, rather obtuse, with the beards nearer the tip than the mouth: *head* clothed with long plates: *mouth* bordered with thick cartilaginous lips: *gill-covers* a single radiate bone: larger *tubercles* bony, pointed, radiate, in 5 rows, one down the back, one down each of the sides, and one each side the edge of the belly: *belly* flat: *dorsal-fin* single, small, near the tail: *pectoral-fins* oval: *ventral* and *anal*, just above and below the dorsal: *tail* forked, the upper-lobe longer and pointed.



## 40. LOPHIUS. Angler.

154. *L. piscatorius*. Brownish, beneath whitish, depressed, simply fringed round the edges of the head and sides.

Frog-fish, Sea Devil. *Br. Zool.* t. 18. *Shaw v. t.* 161. *Donov. t.* 101.

Body 4 or 5 feet long, very thick and large in front, tapering to the tail: head rounded in front, the lower-jaw longer, the upper with a horny bristle before the eyes, and furnished with several long cirri: eyes large, iris radiate with white and brown: teeth sharp, numerous, both in the jaws palate and tongue: dorsal-fin on the lower part of the back, 10-rayed; pectoral large, rounded, fcolloped, 24-rayed; ventral short, rigid, palmate, white, 5-rayed; anal near the tail, 9-rayed: tail rounded, 8-rayed.

## 41. CYCLOPTERUS. Sucker.

155. *C. Lumpus*. Blackish-olive, beneath red: body angulate by 7 rows of sharp bony tubercles.

Lump Sucker. *Br. Zool.* t. 21. *Donovan, t.* 10. *Shaw v. t.* 106.

2. Back very high, pyramidal. *Shaw, Zool. v. t.* 166.

3. Blue, silvery-green, and rosy. *Nat. Miscell. t.* 10.

Body 18 or 19 inches long, rough with tubercles, deep and thick, sharp and raised on the back, flat on the belly: head short, sloping: iris, lips, mouth and tongue red: nostrils single, tubular, near the mouth: orb of adhesion oval, furrounded with thread-like appendages: fins reddish: dorsal near the tail 11-rayed; pectoral 20; ventral 6; anal 10; tail nearly even, 12-rayed.

156. *C. Liparis*. Brownish with blackish spots, beneath white: first ray of the ventral-fin elongated, pectoral ventral and anal united.

Unctuous Sucker. *Br. Zool.* iii. t. 21. *Shaw v. t.* 166.

2. Chestnut, with whitish undulate lines. *Donov. t.* 47.

Body about 5 inches long, taper, soft unctuous and semitransparent, soon dissolving, brown with darker lines: belly protuberant above the vent: upper-lip with 2 short cirri; a little longer than the lower: nostrils double: orb of adhesion round, bluish, with 12 radiate spots: fins brownish; dorsal 36-rayed; pectoral 32; ventral 6; anal 26; tail rounded, 12-rayed.

157. *C. Montacuti*. Conical, transparent, rosy with roundish brown spots: ventral and anal-fins not reaching to the tail.

Diminutive Lump Sucker. *Donovan's British Fishes, t.* 68.

Body hardly an inch long, pale with a pink tinge, marked with numerous distinct roundish purplish-brown spots: head large, rather inflated about the gills, contracting a little in front, gradually decreasing to the tail: pupil black; iris silvery: gill-covers dusky; orb of adhesion ovate, radiate: dorsal and anal-fins long, reaching nearly to the tail; pectoral 17 or 18-rayed: anal about 32; tail rounded, with 2 dark bands, 15-rayed.

158. *C. bimaculatus*. Pale rosy, with a purple spot surrounded by a white ring on each of the sides: head flattish, rather pointed in front:

Bimaculated Sucker. *Br. Zool. t.* 22. *Donov. t.* 78.

Body about an inch and a half long, pink and white in minute spots: head broad, tapering in front and to the tail: mouth small: teeth small, regular: eyes large, pupil dark-blue, iris pink with a gold inner circle: dorsal-fin short, nearer the tail, 5-rayed; pectoral

broad, 11-rayed; *ventral* 4; *anal* opposite the dorsal, 5; *tail* narrow, slightly rounded, 12-rayed.

159. *C. ocellatus*. Livid-brown with obscure spots, tapering behind: snout projecting: before each eye a pair of beards: nape with 2 large ocellar spots.

Ocellated Sucker, Jura S. *Br. Zool.* iii. t. 22. *Donov.* t. 76.

*Body* about 4 inches long, sometimes paler with the spots more distinct: *head* broad, tapering to the snout which is obtuse and red: *iris* blue, with 2 deep red cirri under each eye: *nape* with 2 large obovate purplish spots, each inclosed within a broad pale ring, and having a blue pupil in the centre: *dorsal* and *anal-fins* reaching close to the tail, red, the former 11-rayed, the latter 10; *pectoral* pale, 17; *tail* red, a little rounded, 6-rayed.

#### 42. CEPHALUS. Sun-fish.

160. *C. brevis*. Brown, beneath silvery: body nearly as deep as it is long: aperture of the gills ovate.

Short Sun-fish. *Br. Zool.* t. 12. *Donovan* t. 25. *Shaw* v. t. 175.

*Body* growing to a large size, nearly orbicular, rough with small tubercles, edged behind with a shallow fin: *mouth* small, projecting, filled with small obtuse unequal teeth in the lower-jaw: *eyes* black: *iris* yellow: aperture of the *gills* oval, with the rounded pectoral-fins just behind: *dorsal* and *anal-fins* opposite and joined to the tail: *dorsal-fin* 13-rayed; *anal* 16; *pectoral* 12; *tail* furrrounding the hind-part of the body, 14-rayed.

161. *C. oblongus*. Dusky, beneath silvery: body nearly thrice as long as it is deep: aperture of the gills semilunar.

Oblong Sun-fish. *Br. Zool.* iii. t. 19. *Donovan.* t. 61.

*Body* resembling the former, but is of a more lengthened shape, resembling a fish cut off in the middle, and between the eyes and pectoral-fins are a few dusky streaks pointing downwards: the aperture of the *gills* is also lunate, and not oval: *dorsal-fin* 12-rayed; *pectoral* 14; *anal* 15; *tail* 17-rayed.

#### 43. TETRODON.

162. *T. stellatus*. Above blue, beneath silvery: prickles of the belly arising from a stellated root of 4 rays.

Stellated Tetradon. *Br. Zool.* t. 20. *Donovan* t. 66. *Shaw* t. 177.

*Body* about 12 inches long, taper, capable of dilating the belly to a great size: *prickles* of the belly orange, sharp, covering the whole space of the belly as far as the *anal-fin*: *dorsal-fin* opposite the anal, 11-rayed; *pectoral* 14; *anal* 10; *tail* even, with a slight projection in the middle, with 6 branched rays.

#### 44. SYNGNATHUS. Pipe-fish.

163. *S. Acus*. Body 7-sided, yellowish-white with transverse brown bands: tail radiate, snout narrower than the head.

Needle-fish. *Br. Zool.* t. 23. *Shaw* v. t. 179.

*Body* 12 to 15 inches long, very slender, quadrangular at the tail, covered with finely striate plates: *snout* a little compressed, not so broad as the head: *nape* carinate, the aperture of the gills on the right side: *belly* strongly carinate, making the body distinctly 7-sided: *vent* nearer the head: *dorsal-fin* spotted, 38-rayed: *pectoral* 14; *anal* 6; *tail* rounded, 10-rayed.

164. *S. Typhle*. Body 6-sided: tail radiate: snout as wide as the head.

## FISHES. CARTILAGINEI. 45. *Centriscus* 177

Shorter Pipe-fish. *Br. Zool. t. 23. Donovan t. 56. Shaw t. 179.*

Resembles the last, but is shorter, the belly but slightly carinate, giving it the appearance of being 6-sided only; the snout broad and compressed; and the dorsal-fin is not spotted: *dorsal-fin* 41; *pectoral* 12; *anal* minute, 3; *tail* 12-rayed.

165. *S. pelagicus*. Yellow-brown, with narrow transverse brown bands: body 7-sided, without anal-fin: tail radiate.

Pelagic Pipe-fish. *Donovan's Brit. Fishes, t. 58.*

Body 5 or 6 inches long, linear: snout narrow: *dorsal-fin* 23-rayed; *pectoral* 14; *tail* minute 10-rayed.

166. *T. barbarus*. Body 6-sided, without anal fin or radiate tail.

Little Pipe-fish. *Br. Zool. iii. tab. 23. n. 61.*

Body olive-brown, with bluish longitudinal lines; resembles the last, except that the tail tapers to a point and has no radiate fin: *dorsal-fin* 40-rayed; *pectoral* very minute, 12-rayed.

167. *S. Ophidion*. Body nearly cylindrical, without pectoral or anal-fin, or radiate tail.

Sea Adder. *Br. Zool. iii. t. 23. n. 62. Shaw v. t. 179.*

Body slender, tapering to a point, dull greenish-grey, with a short turned up snout.

### 45. CENTRISCUS.

168. *C. Scolopax*. Red, beneath golden, rough with pointed scales: first-ray of the first dorsal-fin very long, and serrate on the inside:

Snipe-fish, Trumpet-fish. *Donovan's Brit. Fishes, tab. 63.*

Body 6 or 7 inches long, of a longish-oval shape, more or less red with a golden tinge on the sides and belly, rough with hard pointed closely imbricate scales: snout a little recurved, ending in a narrow mouth: eyes large, lateral; iris pale red: nostrils double, near each other: first *dorsal-fin* 4-rayed; the first ray thick, long, serrate on the inside, and placed in a small hollow; the second 9-rayed; *ventral* small, concealed in a long hollow, 7; *anal* opposite the dorsal, 13; *tail* rounded, 15-rayed.

## CLASS V. VERMES. WORMS.

## ORDER I. INTESTINA.

Naked simple animals, without limbs.

A. *Found within other animals: without eyes.*

1. **ASCARIS.** *Body round elastic, tapering towards each end: head with 3 vesicles: intestines pellucid, white, spiral.*
2. **TRICHOCEPHALUS.** *Body round, elastic, variously twisted, much thicker in front and furnished with a slender protrusile proboscis: tail long, capillary, tapering to a fine point.*
3. **FILARIA.** *Body round, filiform, of equal thickness, quite smooth: mouth dilated, with a roundish concave lip.*
4. **ECHINORINCHUS.** *Body round: mouth with a cylindrical retractile proboscis, crowned with hooked prickles.*
5. **FACIOLA.** *Body flattish, with an aperture or pore at the head, and generally another at a distance beneath.*
6. **TAENIA.** *Body flat, composed of numerous joints: head with 4 orifices for suction a little below the mouth: mouth terminal, generally crowned with a double series of retractile hooks.*

B. *Not inhabiting the bodies of other animals.*

a. *Furnished with a lateral pore.*

7. **LUMBRICUS.** *Body round, annulate, with generally a fleshy belt near the head, mostly rough with minute concealed prickles placed longitudinally.*
8. **SIPUNCULUS.** *Body round, elongated: mouth cylindrical, terminal, narrower than the body: aperture at the side of the body, wart-like.*
9. **PLANARIA.** *Body flattish, pointed behind, gelatinous, with a double ventral pore, proceeding with a slow and uniform motion: mouth terminal.*
10. **HIRUDO.** *Body oblong, truncate at each end, cartilaginous, unarmed, moving by dilating the head and tail and contracting itself into an arch.*

b. *Without the lateral pore.*

11. **LINEUS.** *Body a little depressed, linear, smooth: mouth longitudinal, placed underneath.*
12. **GORDIUS.** *Body round, filiform, of equal thickness, smooth.*



## ORDER II. MOLLUSCA.

Naked simple animals, furnished with limbs.

13. **ACTINIA.** *Body* fixed by the base, warted, contractile, with a single terminal mouth above surrounded by numerous cirri.
14. **ASCIDIA.** *Body* fixed by the base, smooth roundish, apparently issuing from a sheath, with 2 terminal apertures, one placed beneath the other, and radiate with simple cirri.
15. **DERRIS.** *Body* detached, cylindrical, composed of articulations: *mouth* terminal: *head* with 2 simple cirri at top.
16. **HOLOTHURIA,** *Body* detached, cylindrical, open at the extremity: *mouth* terminal, surrounded by branched cirri.
17. **TEREBELLA.** *Body* oblong, creeping, often inclosed in a tube, furnished with lateral fascicles and branchiæ: *mouth* terminal, with lips but no teeth, protruding a clavate proboscis, and surrounded by numerous ciliate capillary cirri.
18. **LIMAX.** *Body* oblong, creeping, with a fleshy shield above, and a longitudinal flat disk beneath: *aperture* placed on the right side, within the shield: *feelers* 4, above the mouth, with an eye at the tip of each of the larger-ones.
19. **APLYSIA.** *Body* creeping, covered with reflected membranes, with a membranaceous shield covering the lungs: *aperture* on the right side: *vent* above the extremity of the back: *feelers* 4, resembling ears.
20. **DORIS.** *Body* creeping, oblong, flat beneath: *mouth* placed below, on the fore-part: *vent* behind the back, surrounded by a fringe: *feelers* 2 or 4, seated above in front, retractile within their proper receptacles.
21. **NEREIS.** *Body* creeping, long with numerous lateral peduncles or feet each side: *feelers* simple, rarely none: *eyes* 2 or 4, rarely none.
22. **APHRODITA.** *Body* creeping, oblong, covered with scales, and furnished with numerous bristly fascicled feet each side: *mouth* terminal, cylindrical, retractile: *feelers* 2, setaceous, annulate: *eyes* 4.
23. **AMPHITRITE.** *Body* projecting from a tube, annulate, furnished with numerous small feet each side: *feelers* 2, approximate, feathered: *eyes* none.
24. **SPIO.** *Body* projecting from a tube, jointed and furnished with dorsal fibres: *peduncles* or *feet* rough with bristles and placed towards the back: *feelers* 2, long, simple: *eyes* 2, oblong.

25. NAIS. *Body* creeping, long, linear, depressed, pellucid : *feet* with small bristles each side : *feelers* none : *eyes* 2 or none.
26. LERNAEA. *Body* oblong, roundish, naked, with 2 or 3 round tentacula or arms each side by which it attaches itself : *ovaries* 2, projecting like tails from the lower extremity.
27. SEPIA. *Body* fleshy, receiving the breast in a sheath, with a tubular aperture at its base : *arms* 8, beset with numerous warts or suckers, and in most species 2 peduncled feelers : *head* short : *eyes* large : *mouth* resembling a parrot's beak.
28. TRITON. *Body* oblong : *mouth* with an involute spiral proboscis : *arms* 6 each side, divided nearly to the base, the hind-ones cheliferous.
29. MEDUSA. *Body* gelatinous smooth, orbicular, generally flat or concave underneath : *mouth* underneath, central.
30. ASTERIAS. *Body* depressed, covered with a coriaceous muricate crust, grooved underneath, furnished with feelers : *mouth* underneath, central, 5-valved.
31. ECHINUS. *Body* more or less orbicular, covered with a bony sutured crust, and generally clothed with moveable spines : *mouth* underneath, 5-valved.

### ORDER III. TESTACEA. SHELLS.

The calcarious covering of Molusca.

A. *With more than two valves:*

32. CHITON. *Inhabitant* of the shell a Doris : *shell* consisting of several plates or valves disposed transversely down the back, and incumbent on each other at their anterior edge.
33. BALANUS. *Inhabitant* a Triton : *shell* affixed by the base, of many erect unequal valves.
34. LEPAS. *Inhabitant* a Triton : *shell* affixed by a fleshy peduncle, of several unequal valves connected by a cartilage.
35. PHOLAS. *Inhabitant* an Ascidia : *shell* with 2 large valves open at each end, and smaller accessory-ones at or near the hinge.

B. *With 2 valves.*

36. MYA. *Inhabitant* an Ascidia : *shell* generally gaping an one end : *hinge* mostly with a strong thick broad tooth not inserted into a groove in the opposite valve.
37. SOLEN. *Inhabitant* an Ascidia : *shell* oblong, open at both ends : *hinge* with a reflected subulate tooth, often double, not inserted into a groove in the opposite valve.

38. **TELLINA.** *Inhabitant* a Tethys : *shell* generally sloping and somewhat curved on one side : *hinge* with generally 3 teeth, the lateral-ones in one valve flat or nearly obsolete.
39. **CARDIUM.** *Inhabitant* a Tethys : *shell* of equal convex valves, ribbed or striate longitudinally, toothed round the edges : *hinge* with 2 teeth near the beak, and a larger remote one on each side, each locking into the opposite valve.
40. **MACTRA.** *Inhabitant* a Tethys : *shell* with equal valves, unequal at the sides : *hinge* with the middle tooth complicated, with a small hollow each side; the lateral-teeth remote and locking into the opposite valve.
41. **DONAX.** *Inhabitant* a Tethys : *shell* with the anterior margin very obtuse and generally crenulate : *hinge* with 2 teeth in the middle, and a single remote lateral one.
42. **VENUS.** *Inhabitant* a Tethys : *shell* with the anterior margin of the lip of one valve generally incumbent on the other : *hinge* with 3 teeth, all close together, the lateral-ones diverging from their tips.
43. **CHAMA.** *Inhabitant* a Tethys : *shell* strong, rather coarse ; *hinge* rugged, gibbous, the teeth obliquely locking into the opposite valve.
44. **ARCA.** *Inhabitant* a Tethys : *shell* of equal valves : *hinge* with numerous sharp teeth alternately locking between each other.
45. **PECTEN.** *Inhabitant* a Tethys : *shell* of unequal valves, mostly ribbed or striate longitudinally, with an ear-like process on one or both sides the hinge : *hinge* without teeth, but furnished with a small somewhat triangular hollow.
46. **OSTREA.** *Inhabitant* a Tethys : *shell* of unequal rugged or plaited valves without the ear-like process : *hinge* without teeth, with a transverse striate cavity.
47. **ANOMIA.** *Inhabitant* not reducible to any genus of Mollusca : *shell* of unequal valves, one of them flattish and mostly perforated near the base, the other convex at the base with a produced beak : *hinge* a transverse linear prominence on the flat valve connected by a strong cartilage under the beak of the opposite valve.
48. **MYTILUS.** *Inhabitant* allied to an Ascidia : *shell* generally affixed by a beard of silky filaments : *hinge* without teeth, marked by a longitudinal groove which is sometimes crenulate.
49. **PINNA.** *Inhabitant* allied to an Ascidia : *shell* fra

gile, gaping at one end, fixed by a beard of silky filaments: *hinge* without teeth, the valves connected on one side nearly the whole length.

C. *With a single valve, and more or less spiral.*

50. NAUTILUS. *Inhabitant* obscure, *shell* divided into several compartments or cells communicating with each other by a small aperture.
51. CYPRÆA. *Inhabitant* a Limax: *shell* involute, rather ovate, smooth, obtuse at each end: *aperture* linear, extending the whole length of the shell, and toothed on both sides.
52. BULLA. *Inhabitant* allied to a Limax: *shell* convolute, without teeth: *aperture* more or less contracted, longitudinal, oblong, entire at the base: *pillar* oblique, smooth.
53. VOLUTA. *Inhabitant* a Limax: *shell* spiral: *aperture* longitudinal, reaching nearly the whole length of the shell, without beak: *pillar* twisted or plaited, without perforation or interior lip.
54. BUCCINUM. *Inhabitant* a Limax: *shell* spiral, gibbous: *aperture* ovate, ending in a short canal leaning to the right, with a retuse beak or projection.
55. STROMBUS. *Inhabitant* a Limax: *shell* spiral: *aperture* much dilated, the lip expanding and produced into a canal leaning to the left.
56. MUREX. *Inhabitant* a Limax: *shell* spiral, mostly rough with membranaceous folds or knobs: *aperture* oval, ending in a straight entire canal, sometimes slightly reflected.
57. TROCHUS. *Inhabitant* a Limax: *shell* spiral, more or less conic: *aperture* somewhat angular or rounded, transversely contracted: *pillar* placed obliquely.
58. TURBO. *Inhabitant* a Limax: *shell* spiral, solid: *aperture* contracted, orbicular, entire.
59. HELIX. *Inhabitant* a Limax: *shell* spiral, more or less transparent, brittle: *aperture* contracted, roundish-oval, or semilunar.
60. NERITA. *Inhabitant* a Limax: *shell* spiral, gibbous, flattish beneath: *aperture* semiorbicular: *pillar*-lip transverse, flattish and truncate.
61. HALIOTIS. *Inhabitant* a Limax: *shell* dilated, ear-shaped, with a longitudinal row of orifices along the disk: *spire* lateral, flat upon the shell.

D. *With a single valve, and without spire.*

62. PATELLA. *Inhabitant* a Limax: *shell* more or less conic, shaped like a bason, mostly without spire.
63. DENTALIUM. *Inhabitant* a Terebella: *shell* tubular, detached, straight or slightly curved, not divided into chambers, pervious, and open at both ends.



64. VERMICULUM. *Inhabitant* allied to a Terebella : *shell* variously shaped, not attached to other bodies.
65. SERPULA. *Inhabitant* a Terebella : *shell* tubular, affixed to other bodies, generally separated internally by divisions at irregular distances.
66. TEREDO. *Inhabitant* allied to a Terebella : *shell* cylindrical, taper, flexuous, lodged in wood, with 2 testaceous hemispherical valves covering the head of the animal and truncate anteriorly, and 2 lanceolate ones near the tail.
67. SABELLA. *Inhabitant* various : *shell* tubular, composed of particles of sand, broken shells, and other substances, united by a glutinous cement.

## ORDER IV. ZOOPHYTA.

Composite animals, efflorescing like vegetables.

A. *With a hard calcarious stem.* Lithophytes.

68. MADREPORA. *Animal* resembling a Medusa : *coral* with lamellar star-like cavities.
69. MILLEPORA. *Animal* a Hydra or Polype : *coral* mostly branched, and covered with cylindrical turbinate pores.
70. CELLEPORA. *Animal* a Hydra or Polype : *coral* somewhat membranaceous, composed of round cells.
71. ISIS. *Animal* growing in the form of a plant : *stem* stony, jointed; the joints striate longitudinally, united by spongy or horny junctures, and covered with a soft porous cellular flesh or bark : *mouths* beset with oviparous polypes.

B. *With a softer stem.* Zoophytes.

72. GORGONIA. *Animal* growing in the form of a plant : *stem* coriaceous, corky, woody, horny or bony, composed of glassy fibres; or stony, striate, taper, dilated at the base, covered with a vascular or cellular flesh or bark, and becoming spongy and friable when dry : *mouths* or *florets* covering the surface of the stem and polype-bearing.
73. ALCYONIUM. *Animal* generally growing in the form of a plant : *stem* fixed, fleshy, gelatinous, spongy; or coriaceous, covered with polype-bearing stellate cells.
74. SPONGIA. *Animal* fixed, flexile, torpid, of various forms, composed either of reticulate fibres or masses of small spines interwoven together, and clothed with a gelatinous flesh full of small mouths on its surface, by which it absorbs and rejects water.
75. FLUSTRA. *Animal* a Polype proceeding from porous cells : *stem* fixed, foliaceous, membranaceous, consist-

ing of numerous cells united together and interwoven like a mat.

76. **TUBULARIA.** *Stem* tubular, simple or branched, fixed by the base: *animal* proceeding from the end of the tube, and having its head crested with tentacula.
77. **CORALLINA.** *Animal* growing in the form of a plant: *stem* fixed, with calcareous subdivided branches, mostly jointed,
78. **SERTULARIA.** *Animal* growing in the form of a plant: *stem* branched, producing polypes from cup-shaped denticles or minute cells.
79. **PENNATULA.** *Animal* detached, of various shapes, supported by a bony part within, naked at the base, the upper-part with generally lateral ramifications furnished with rows of tubular denticles producing radiate polypes from each tube.
80. **HYDRA.** *Animal* fixing itself by the base, linear, gelatinous, naked, contractile, furnished with setaceous tentacula or feelers, inhabiting fresh waters, and producing its deciduous offspring or eggs from the sides.

## ORDER V. INFUSORIA.

Minute animalcules, seldom visible to the naked eye.

81. **BRACHIONUS.** *Body* contractile, covered with a shell, and furnished at the head with ciliate rotatory organs.
82. **VORTICELLA.** *Body* contractile, without shell, furnished with ciliate rotatory organs.
83. **TRICHODA.** *Body* invisible to the naked eye, transparent, hairy or horned.
84. **CERCARIA.** *Body* invisible to the naked eye, transparent, furnished with a tail.
85. **LEUCOPHRA.** *Body* invisible to the naked eye, every where ciliate.
86. **BURSARIA.** *Body* quite simple, membranaceous, hollow like a purse.
87. **GONIUM.** *Body* invisible to the naked eye, quite simple, flat and angular.
88. **COLPODA.** *Body* invisible to the naked eye, quite simple, transparent, flat and sinuate.
89. **PARAMECIUM.** *Body* invisible to the naked eye, quite simple, flattened, oblong.
90. **CYCLIDIUM.** *Body* invisible to the naked eye, quite simple, transparent, flat, orbicular or oval.
91. **VIBRIO.** *Body* invisible to the naked eye, quite simple, cylindrical and elongated.
62. **BACILLARIA.** *Body* consisting of cylindrical straw-

- like filaments. placed parallel with each other, and frequently changing their position.
93. *ENCHELIS*. Body invisible to the naked eye, quite simple, cylindrical.
94. *VOLVOX*. Body invisible to the naked eye, quite simple, transparent, spherical.
95. *MONAS*. Body invisible to the naked eye, most simple, transparent, resembling a point.

## ORDER I. INTESTINA. INTESTINE.

### 1. ASCARIS. *Ascarides*.

1. *A. vermicularis*. Head subulate: skin at the sides of the body very finely crenulate or wrinkled.

*Barbut's Worms*, t. 1. f. 6. *Mem. Lond. Med. Soc.* v. p. 230. t. 2.

In the human intestines. Body about half an inch long, a little dilated in the middle and wrinkled at the sides, pellucid and angular: head nodose, divided into three vesicles, in the middle of each of which there is an aperture or mouth: tail gradually tapering to a point: vent below the middle. Female with a small perforation a little below the head, through which the young are protruded.

2. *A. lumbricoides*. Head slightly incurved, with a transverse contraction beneath it: mouth triangular.

*Barbut's Worms*, t. 1. f. 7. *Mem. Lond. Med. Soc.* v. t. 1.

In the human intestines. Body 12-15 inches long, transparent, light yellow with a faint line down the side, differing from the earthworm in wanting the fleshy ring below the head, and in having 3 vesicles: head 3-lobed, with a triangular aperture between them: trunk a little wrinkled, with a circular depression about the middle, in which is a small punctiform aperture: tail subulate: vent large, below the middle of the body.

3. *A. Canis*. Head flattened, winged each side with a membrane: spermatic vessels curled: tail pointed.

In the intestines of the Dog. *Redi. Opusc.* 3. t. 17. f. 3.

- A. Felis*. Head with a greyish-white oblong vesicle each side, which is obtuse and pellucid on the hind-part.

In the Cat. *Redi anim. viv. in an. viv.* t. 13 f. 8.

4. *A. Cati*. Head without the oblong vesicles each side.

In the intestines of the Cat. *Goeze Eingew.* p. 80.

5. *A. Equi*. Body whitish, cylindrical, large, taper.

In the Horse. *Goeze Eingew.* p. 62. t. 1. f. 1-3.

Body often a foot and a half long, and as thick as a man's little finger, sometimes marked with large brown patches.

6. *A. Carbonis*. In the crop of the *Pelecanus Carbo*.

*Transact. Linn. Society* v. p. 24.

Body yellowish-brown, coiled up into a ball or mafs.

7. *A. Pelecanus*. In the crop of the *Pelecanus cristatus*.

Resembles the last. *Trans. Linn. Soc.* v. p. 24.

8. *A. marina*. Body filiform, whitish, smooth, twisted spirally and lying flat: intestine tubular.

In marine fish. *Br. Zool.* iv. tab. 20. f. 3. *Gordius*.

9. *A. lucustris*. Body lying flat, spirally twisted, tapering to both extremities.

In the intestines of the Stickleback, and liver of the Pike.

## 2. TRICHOCEPHALUS.

10. *Tr. Hominis*. Body slightly crenate above, smooth underneath, very finely striate on the fore-part.

In the human intestines. *Mem. Lond. Med. Soc. v. t. 3.*

Body about 2 inches long, pale: head obtuse, furnished with a very slender proboscis, which it can protrude and retract at pleasure: tail or thinner-part twice as long as the thicker end, terminating in a fine hair-like point.

11. *Tr. Equi*. Found in the intestines of the horse.

*Goeze Eingew. p. 118. tab. 6. f. 8.*

Resembles the last but is something longer.

## 3. FILARIA.

12. *F. Scarabæi*. Found in the *Scarabæus fimetarius*.

*Philosophical Transact. 1. p. 49.*

13. *F. Carabi*. Found in the *Carabus*.

*Lister Philosoph. Trans. n. 81.*

## 4. ECHINORINCHUS.

14. *E. candidus*. Body pale, opaque, slightly wrinkled.

In fish. *Mull. Zool. Dan. 1. p. 139. t. 37. f. 7-10.*

Body about 3 inches long, and nearly of equal thickness, pale grey, yellowish, saffron, brown, fulvous, reddish or violet, according to the different species in which it has been nourished: proboscis with 9-15 rows of hooks, each row of 9-16 hooks.

## 5. FASCIOLA. Fluke. Gourd-worm.

15. *F. Hepatica*. Body ovate, ending in a short tube on the fore-part, with a tubercle beneath it containing a triangular cavity.

*Linx. Trans. 2. t. 25. f. 17, 18, 19. Barbut t. 2. f. 1.*

In ditches, and the liver of sheep and dogs. Body about an inch long, pointed behind, with generally a white line down the middle and spot in the centre: back a little convex, and marked with about 8 longitudinal grooves in 2 series.

16. *F. intestinalis*. Body oblong, cylindrical, tapering and obtuse at the base: neck round, slightly incurved.

*Mull. Zool. Dan. t. 2. f. 10. 11. Barbut Worms, t. 2. f. 2.*

In the intestines of Breems and Sticklebacks. Body white: lateral-pore seated at the base of the neck: oviducts oblong, brown.

## 6. TÆNIA. Tape-worm.

*A. Mouth armed: body with a vesicle behind.*

17. *T. visceralis*. Pisiform, inclosed in a vesicle, broad on the fore-part and pointed behind.

*Phil. Trans. 43. p. 305 f. 1---8 Goeze Eing. t. 20. B. f. 12. a. b.*

In the liver, placenta, sack containing the hydropic fluid and other morbid tumours of mankind: sometimes solitary, sometimes many together in the same vesicle.

18. *T. cellulosa*. Solitary, inclosed in a cartilaginous vesicle and 2-tailed tunic.

*Werner Verm. intest. p. 2. t. 1. fig. 1---8.*

In the cellular covering of the human muscle, and is very tena-



cious of life: about an inch long, half as broad, and a fourth thick: head furnished with obtuse hooks.

**B. Mouth armed:** *body without the terminal vesicle.*

19. *T. Solium*. Articulations long and narrower, with marginal mouths, one on each joint and generally alternate: ovaries arborescent.

*Linn. Trans. 2. t. 25. f. 1--8. Mem. Lond. Med. Soc. v. t. 4.*

In the intestines of mankind, solitary or in considerable numbers. Body from 3 to 50 or 60 feet long, consisting of a number of distinct joints appearing as if sheathed in one another, each joint with a lateral marginal pore by which it attaches itself to the intestines: head with a terminal mouth surrounded with 2 rows of radiate hooks or holders, and a little beneath on the flattened surface 2 tubercled orifices or suckes each side: tail ending in a semicircular joint without aperture.

20. *T. vulgaris*. Articulations short and broader, with a mouth in the centre of each: ovaries stellate round the mouth.

*Mem. Lond. Med. Soc. v. tab. 5. Nat. Miscell. 7. t. 241.*

In the human intestines. Body from 1 to 5 yards long, often found 3 or 4 together, broader in the middle and tapering to both ends: joints much shorter and broader than the last, finely striate longitudinally and wrinkled transversely at the sides: head narrower and smaller than the last: tail ending in a rounded joint: ovaries stellate or coral-like, placed round the mouths of the joints.

21. *T. cateniformis*. Articulations oblong-elliptic, with single marginal mouths.

1. *canina*. Radii of the head not reaching to the margin.

In the intestines of the Dog. *Linn. Trans. 2. t. 25. f. 9.*

2. *Felis*. In the Cat. *Linn. Trans. 2. t. 25. f. 11.*

Rembles *T. Solium*, but the joints are of a more elliptic form, and the mouths mostly opposite.

22. *T. cerebralis*. Minute, numerous, aggregate, united by their base to a large common vesicle distributed about the surface.

*Batch. Bandw. p. 84. f. 34--36. Goetze Eingew. t. 20. a. f. 1--5.*

In the brain, or spinal marrow immediately beneath the brain of sheep, occasioning the disease known by the name of the *Dunt* or *Richets*. Body not larger than a grain of sand, attached by 2 ligaments, armed on the head with 32--36 hooks by which they affix themselves to the brain or its coats.

**C. Mouth unarmed.**

23. *T. lata*. White, with very short and broad joints knotty in the middle, with a single central mouth in each.

In the human intestines. *Linn. Trans. 2. t. 25. f. 12--14.*

Body 18--120 feet long, more opaque thicker and broader than *T. vulgaris*: joints often half an inch broad, and not more than a line and a half long, very finely striate transversely: ovaries disposed in a rose-like form.

24. *T. ovina*. Articulations very short and narrow, rounded at the ends: lateral vessels pellucid, distinct, with double marginal opposite mouths.

2. In the intestines of the Ox. *Linn. Trans. 2. t. 25. f. 15. 16.*

Body very long, capillary on the fore-part: mouths one on each edge of each joint: ovaries radiate, and running transversely over each joint.

7. LUMBRICUS. *Earth-worm.*

- 25.
- L. terrestris*
- Body red, with 8 rows of prickles.

Dew-worm. *Br. Zool. iv. t. 19. f. 6. Barbut t. 1. f. 8.*2. About half the size. *Br. Zool. iv. t. 19. f. 6. A.*

In the soil. *Body* dull red, with about 140 rings, each containing 4 pair of most minute prickles, convex each side when expanded, flattish when contracted, with a red canal down the whole body: *belt* wrinkled and porous: *mouth* placed beneath the proboscis.

- 26.
- L. marinus*
- Red, with 2 rows of bristly tubercles down the back.

Lug, Lob-worm. *Br. Zool. iv. t. 19. f. 7. Barbut t. 1. f. 9.*Sandy Shores. *Body* pale red, soft, annulate with larger and smaller rings, the larger with 2 tufts of short bristles: *mouth* round.

- 27.
- L. Thalassema*
- . Body striate, dirty-red with shining red spots, beneath grey: mouth surrounded with a funnel-like tube, which is wrinkled within and plaited at the margin.

*Pall. Miscel. Zool. t. 11. f. 9. Spic. Zool. t. 1. f. 6.*On the shores of Cornwall. *Body* glabrous, mucous, thicker at one end, a little pointed at the other: *mouth* placed above, with a saffron funnel.

- 28.
- L. oxyurus*
- . Body whitish-livid, very sharp at the hind extremity, obtuse before, with a cylindrical retractile and exsertile proboscis.

On the Sussex Coast. *Pall. Misc. Zool. t. 11. f. 7. 8.*

*Body* about an inch and a half long, annulate with very fine striæ: *snout* truncate, very finely granulate, with a scarcely visible pore at its base.

8. SIPUNCULUS. *Tube-worm.*

- 29.
- S. nudus*
- . Body covered with a close skin, smooth, of equal thickness at the lower extremity.

The Ocean. *Br. Zool. iv. t. 20. f. 10. Barbut t. 2. f. 3.*

*Body* dirty-white, about 8 inches long, somewhat conic, deeply striate longitudinally and transversely, and reticulate: *mouth* tube-like and projectile, armed with fleshy 2-pointed papillæ, beneath which is an oblong transverse aperture surrounded by a prominent lip.

- 30.
- S. saccatus*
- . Body covered with a loose skin, smooth, globular at the lower extremity.

*Barbut t. 2. f. 4. Linn. Trans. 7. p. 75.*

*Body* larger than the last, inclosed in a loose membranous diaphanous skin, dilated at the lower end, and is not contracted towards the middle.

- 31.
- S. Strombus*
- . Body covered with a close skin, warty below the vent.

*Montague Linn. Trans. 7. p. 74.*

*Body* 3 or 4 inches long, livid, surrounded with short feelers at the mouth: resembles *S. nudus*, but is shorter, warty for a considerable space behind the vent, not so suddenly decreasing in size above the vent, and the feelers round the mouth longer.

## 9. PLANARIA.

- 32.
- Pl. nigra*
- . Black, depressed, linear, with a semi-pellucid whitish spot above the tail.

On aquatic plants. *Linn. Trans. 2. p. 317. Hirudo.*

*Body* deep velvet-black above and below, circular when at rest,

and seldom above a line long, linear when in motion and extending to about 3 lines in length.

33. *Pl. alba*. White with brown ramifications, depressed, curled at the margin, rather pointed at the end.

On aquatic plants. *Linn. Trans.* 2. p. 316. Hirudo.

Body ovate when at rest, linear and 6 or 7 lines long when in motion, transparent on the margin: eyes 2: ovary oblong, pointed at the ends, with usually 2 livid spots.

34. *Pl. viridis*. Green with a transparent margin, depressed, oblong, pointed at the tail.

Cold Streams *Linn. Trans.* 1. p. 93. tab. 7. Hirudo.

Body about the eighth of an inch long, grass-green, nearly circular when at rest: eyes 2, black: eggs 5 or 6, oblong, deep brown.

### 10. HIRUDO. Leech.

35. *H. sanguisuga*. Elongated, olive-brown, with an ochre-yellow marginal band.

Stagnant waters. *Barbut Worms*, p. 20. tab. 2. f. 6.

Body 4 or 5 inches long, depressed, smooth, glossy, above dull olive-black with a dirty yellow margin each side, beneath paler with often a few black spots: tail thicker than the head.

36. *H. medicinalis*. Elongated, olive-black, with 6 yellow-ferruginous lines above, and spotted with yellow beneath.

Stagnant waters. *Barbut Worms*, p. 19. t. 2. f. 5. Horse-leech.

Body about 2 inches long, composed above of numerous annular wrinkles, and marked with longitudinal variegated stripes: mouth smaller than the tail, armed with 3 cartilaginous teeth: tail composed of an annular muscle by which it attaches itself.

37. *H. octoculata*. Elongated, yellow-brown, with 8 eyes in the form of a crescent.

Stagnant waters. *Act. Stockh.* 1757. t. 6. f. 5--8.

Body about an inch and a half long, sometimes immaculate, sometimes marked with variously coloured spots or lines: eyes often 9.

38. *H. stagnalis*. Elongated, whitish with grey dots, plaited at the sides: eyes 2.

Wet hollows. *Act. Stockh.* 1757. t. 6. f. 9--11.

Body about 9 lines long, pellucid: eggs about 40, surrounded by a transparent circle, grey becoming brown.

39. *H. complanata*. Dilated, grey, with a double tubercled line on the back, serrate at the sides.

Slow Streams. *Act. Stockh.* 1757. tab. 6. f. 12--14.

Body about 4 lines long, with transverse bands composed of 3 pale lines, whitish at the edges: head pointed, white: eyes 6: tail orbicular.

40. *H. geometra*. Elongated, yellowish-green, with a longitudinal row of white spots.

Shallow Streams *Br. Zool.* iv. t. 20. f. 13. *Barbut* t. 2. f. 7.

Body about 8 lines long, sometimes brownish, varying in colour, tapering before, very broad at the tail: eyes 4: back carinate when in motion.

41. *H. circulans*. Oblong, pointed towards the head, convex above, flat beneath, dull red.

The Thames. *Sowerby's Brit. Misc.* tab. 76.

Body about an inch long when extended, convex and obscurely striate on the upper side, flat and paler beneath.

42. *H. crenata*. Slightly depressed, greenish-grey, sub-

oval, with transverse annular striæ, crenulate at the sides.

Shallow Streams. *Linn. Trans.* 2. p. 318. tab. 29.

Body about half an inch long, broad and rounded on the hind-part, tapering like a pear before, convex on the upper-surface, flat beneath: eyes 2, approximate.

43. *H. muricata*. Round, taper, annulate and tubercled, with 2 short horns on the head.

The ocean. *Br. Zool.* iv. t. 20. f. 14. *Barbutt.* 2. f. 8.

Body 2 or 3 inches long, strongly annulate, and tubercled on the rings: head larger than the tail, which is much dilated.

## 11 LINEUS. Line-worm.

44. *L. longssimus*.

The ocean. *Sowerby Miscel.* t. 8. *Borl. Cornw.* t. 26. f. 13.

Body many feet long, slightly tapering downwards, the third of an inch broad, black towards the head, becoming light brown with paler longitudinal streaks: head broader and tapering into a snout, emarginate, marked with a transverse semicircular line.

## 12. GORDIUS. Hair-worm.

45. *G. aquaticus*. Pale-brown, with dark extremities.

Boggy places. *Barbut Worms*, tab. 1. f. 1.

Body 10 or 12 inches long, not much thicker than a horse-hair, twisting itself into various knots and contortions, smooth, glossy, rarely a little slenderer at one end: mouth small, horizontal, with equal obtuse jaws.

46. *G. argillaceus*. Body uniformly pale yellow.

In clay. *Barbut Worms*, tab. 1. f. 2.

Body hardly distinguishable from the last, except in being of an uniformly yellowish colour.

47. *G. annulatus*. Garnet-red annulate with white, with a white line down the back and another on each side.

The ocean. *Montague Linn. Trans.* 7. p. 74.

Body 6 or 7 inches long, rounded and white at the posterior extremity, with 2 rows of minute white spots between the white lines encircling the trunk: front, except the upper-lip, white.

## ORDER II. MOLLUSCA.

### 13. ACTINIA.

48. *A. equina*. Greenish, with a rosy foramen or mouth: cirri pale rosy, with an aperture at the end of each.

The ocean. *Sowerby Brit. Misc.* p. 7. tab. 4.

Body greenish above, varied with orange stripes and covered with minute white specks; roundish when closed, warted, flat at the base with a narrow rim, grey beneath: mouth soft, red, surrounded by 138 cylindrical obtuse cirri with a red line near the base of each: stomach light brown, plaited.

49. *A. crassicornis*. Red, with thick conic cirri.

*Barbut Worms*, t. 5. t. 6. *Shaw Nat. Misc.* t. 330.

Body pale red, transversely wrinkled; cirri whitish at their tips.

50. *A. plumosa*. Tentacula small: the margin surrounded with pellucid cirri.

*Barbut Worms*, tab. 5. fig. 5.

Body nearly cylindrical, transversely wrinkled, varying in colour, red, brown chesnut, yellow-brown, yellow-green, or white; some-



times opaque, often pellucid; divisions of the aperture white, rufous, or orange.

51. *A. effæta*. Nearly cylindrical, angularly grooved longitudinally, crenate at the base, with numerous pointed cirri.

*A. maculata*. Linn. Trans. v. p. 8.

Body dull red below, transparent white above with red spots, more expanded at the base.

52. *A. anemonoides*. Nearly cylindrical, rather short, red: interior tentacula ramified, outer-ones conic, obtuse.

Rocky coasts. Shaw Nat. Miscel. tab. 26, 27.

Body with a triple concentric row of tentacula, of a yellow colour varied with red; stomach pale yellow, with red and pale sea-green stripes.

53. *A. truncata*. Pale reddish-yellow, conic, pellucid, glabrous.

The ocean. Dictionnaire Philosoph. Trans. 63. t. 17. f. 13.

54. *A. Caryophyllus*. Red-brown, with small pencil-form tentacula.

Martin's Marine Worms. 1. p. 1. tab. 1. fig. 1.

55. *A. Cereus*. Brown, longitudinally grooved: cirri numerous, slender, unretractile, sea-green with rosy tips.

Cornish coast. Philosoph. Trans. 52. tab. 1. f. 1.

Body marked with trifurcated grooves, pale chestnut: cirri long, slender, from 120 to 200 in number.

56. *A. Bellis*. Red with white warts: head resembling the calyx of a flower: cirri short, retractile, variegated.

Cornish coast. Phil. Trans. 52. tab. 1. f. 2.

Stem smooth, soft, inclining to carnation, with white warts changing towards the border of the cup into purple and at last dark brown: cirri in several rows, pellucid, unequal, of various colours; disk stellate, composed of variegated rays of brown yellow grey and white.

57. *A. gemmacea*. Pale red, longitudinally striate, with numerous miliary glands down the striæ: disk surrounded with short petal-like projections which are invested with cirri.

Cornish coast. Phil. Trans. 52. tab. 1. f. 4.

Body cylindrical, pale red near the base, the rest yellow mixed with grey: glands of the middle row white, the others the colour of the stem: tentacula retractile, whitish, varied at the upper-part with several brown transverse lines and brown spots.

58. *A. Mesembryanthemum*. Dull crimson, short, thick smooth, with retractile cirri; the edge of the disk surrounded with a single row of tubercles.

Rocky shores. Phil. Trans. 52. tab. 1. f. 5.

Body when closed resembling a button: cirri red, blue, white, or variegated; tubercles shining, varying in colour.

59. *A. Dianthus*. Smooth, nearly cylindrical; the disk 5-lobed and foliaceous, with small white cirri: mouth elevated and striate.

Rocky coasts. Phil. Trans. 57. tab. 19. t. 8.

Body seated on a short thick stalk, pendulous, and when closed resembling a small whitish fig.

## 14. ASCIDIA.

60. *A. rustica*. Oblong, brownish with flesh-colour apertures, rough at the extremities, smooth in the middle.  
The ocean. *Br. Zool.* iv. t. 23. f. 35. *Barbut* t. 5. f. 4.  
*Body* nearly cylindrical, flat underneath, turned up at one end, about 2 inches long.
61. *A. mamillaris*. Somewhat paralleliped, whitish: apertures terminal, of the same colour as the body.  
Cornish coast. *Pall. Spicil. Zool.* 10. p. 24. t. 1. f. 15.  
*Body* very irritable, variously shaped, wrinkled and gibbous, here and there sprinkled with soft bristles, dirty white, coriaceous; nipple of the apertures hemispherical, rich scarlet within.

## 15. DERRIS.

62. *D. sanguinea*.  
Pembrokeshire coast. *Linn. Trans.* 3. t. 13. f. 1. 2.  
*Body* cylindrical, mostly tapering to a point behind, jointed and capable of great flexibility, covered with a membranaceous transparent coat through which the internal parts are visible: *head* extended beyond the outer skin, less than the anterior part of the body, to which it is connected by a membranaceous covering forming a neck: *feelers* white, seated on the top of the head, capable of being raised or depressed at pleasure: *mouth* with 2 lips, the upper one hooked and moveable, the lower straight and fixed.

## 16. HOLOTHURIA.

63. *H. Pentactes*. Body with 5 longitudinal rows of tubercles, and 10 ramified tentacula.  
The ocean. *Br. Zool.* iv. t. 26. f. 41. *Barbut* t. 6. f. 6.  
*Body* about 6 inches long, cylindrical, a little incurved, greenish brown: *tubercles* hollow, in pairs, with a small retractile filament from each: *tentacula* elegantly ramified, yellow and silver, reddish at their tips.

## 17. TEREbella.

64. *T. conchilega*. whitish, with numerous filiform cirri round the mouth; the upper-ones very long: branchiæ rich red.  
*Pall. Mistell. Zool.* t. 9. f. 17. *Br. Zool.* iv. n. 24.  
Within the fabella *conchilega*, about 5 inches long.  
*Body* flat; tapering towards the tail, pellucid, above reddish: *head* armed with 4 scales beneath: *tube* or case taper, straight, composed of minute particles of agglutinated sand, about the size of a goose's quill, and nearly half a foot long.

18. LIMAX. *Snail, Slug*.

65. *L. ater*. Body black, furrowed and wrinkled.  
Woods, Gardens, &c. *Barbut* t. 3. f. 1.  
*Body* about 3 inches long, narrower at each end, convex on the back, paler and flat beneath: *shield* rough with numerous dots.
66. *L. rufus*. Above dull reddish, beneath whitish.  
Damp shades. *Barbut. tab.* 3. f. 2.  
*Body* hardly 2 inches long, slightly furrowed, without spots or belt: larger *feelers* black above.
67. *L. flavus*. Amber-colour, with whitish spots.  
In herbage *Barbut. tab.* 3. f. 4.  
*Body* an inch and a half long, prominent on the back, hollowed underneath, slightly wrinkled.

68. *L. maximus*. Cinereous, with or without spots.  
 Damp places. *Barbut t. 3. f. 3.*  
 Body 4 or 5 inches long, reticulate on the head with black, sometimes with 3 longitudinal pale lines down the back, and 4 dusky ones spotted with black.
69. *L. agrestis*. Whitish, with blackish feelers.  
 2. Whitish with a yellowish shield.  
 Gardens and groves. *Linn. Trans. iv. p. 85. t. 8. f. 1-4.*  
 Body 2-9 lines long, varying a little in colour.
70. *L. lanceolatus*. Linear-lanceolate, very sharp at each end, surrounded with a membranaceous border: feelers none.  
*Pall. Spicil. Zool. 13. p. 19. tab. 1. f. 11.*  
 On the Cornish coast, of a very uncertain Genus.  
 Body 2-lobed and grooved on the margin beneath, marked on the sides with obsolete striæ oblique on the forepart, and recurved in an angle near the back.

## 19. APLYSIA.

71. *A. depilans*. Of an uniform leaden or purple colour.  
 The ocean. *Sow. Misc. t. 53. Br. Zool. t. 21. f. 21. Barb. t. 3. f. 5. 6.*  
 Body 2 or 3 inches long, apparently a mis-shapen mass enveloped in a loose-skin which folds over and nearly meets on the back, tapering towards each end: shield pale, nearly in the middle of the back, oval: eyes placed behind the longer and hindmost pair of feelers.
72. *A. viridis*. Green, beneath pale: below the head a dilated wing-like membrane each side.  
*Montague Linn. Trans. 7. p. 76. tab. 7. f. 1.*  
 Body formed in front like a common Limax, grass green, with a few small azure spots on the upper part of the fins, and more numerous ones beneath, depressed, with 2 membranous fins gradually decreasing in size: front bifid: lips with a black margin; feelers 2, flat, behind each of which is a whitish mark in which is placed a small black eye: shield not visible.

## 20. DORIS. Sea lemon.

73. *D. Argo*. Pale red, oval, smooth, with 2 small feelers at the mouth: vent surrounded by a ramified fringe.  
 Sea coasts. *Br. Zool. t. 22. f. 22. Barb. t. 4. f. 4.*  
 Body 3 or 4 inches long, rounded at each end, convex in the middle, marked with sulphur spots and black dots: vent surrounded by an elegantly ramified sulphur fringe dotted with black: feelers 4, white dotted with red at the tips.
74. *D. vermigera*. Oblong-oval; reddish-grey, covered on the back with numerous vermicular appendages.  
*Taken on the Mumble rocks, by the Author, April 24, 1807.*  
 Body an inch and half long; oblong-oval, white and flat underneath; reddish-grey and hemispherical on the back, clothed with roundish taper soft flexile appendages about 3 lines long, variegated grey and purplish-brown: feelers 4, 2 taper white ones below the mouth, and 2 short conic brown ones on the top of the head. Resembles *D. clavigera* of Muller *Zool. Dan.* but the pedicels are not clavate, and they are longer and more flexible; and it has 4 feelers.
75. *D. verrucosa*. Body covered with tubercles on the upper-side.  
 Sea coasts. *Br. Zool. t. 21. f. 23. Barb. t. 4. f. 1.*  
 Body oblong, nearly cylindrical, convex and rounded at the extre-

mities, with the lateral margins deflected: *feelers* 2, besides 8 short ones surrounding the mouth: *pedal-limb* oval, oblong, with a flat margin.

76. *D. bilamellata*. Oval, covered with a rough punctured plate.

Sea coasts, *Brit. Zool. t. 24, f. 24. Barbut t. 4. f. 2.*

Body the size of a snail, abrupt in front, glabrous, above pale brown with grey dots, beneath white: *plate* with sulphur dots above, white beneath: *feelers* brown: *vent* transverse, surrounded with 6 sulphur plumes.

77. *D. pinnatifida*. Body elongated, pinnate down the sides with conic clusters of ovate imbricate papillae.

*Montague Linn. Trans. 7. p. 78. t. 7. f. 2. 3.*

Body 3 lines long, green and rufous: *front* rounded: *tentacula* 2, trumpet-shaped, ending in a retractile filiform appendage: *clusters* opposite, consisting of 5 or 6 rows of imbricate ovate blue-grey papillae tipped with black.

78. *D. cærulea*. Body elongated, covered with clavate simple vesicles placed in whorls.

*Montague Linn. Trans. 7. p. 78. t. 7. f. 4. 5.*

Body a quarter of an inch long, green: *feelers* 4, somewhat filiform: *eyes* at the base of the hinder feelers: *tubercles* blue, tipped with orange, with 2 pink oval vesicles on the back between the second and third whorl.

79. *D. flava*. Body elongated, tapering to a point behind: *vent* on the back, surrounded by 7 feathered appendages, below which are 2 long simple fusiform ones.

*Montague Linn. Trans. 7. p. 79. t. 7. f. 6.*

Body half an inch long, white with orange spots: *feelers* 4, long, pointed, orange, with 2 erect wrinkled ones on the top of the head: *vent* nearer the lower end.

80. *D. maculata*. Body slender, tapering, with several pairs of subclavate peduncles down the back lobed at their tips.

*Montague Linn. Trans. 7. p. 80. t. 7. f. 8-9.*

Body 8 lines long, pale yellow speckled with pink: *front* obtuse: *feelers* 2, trumpet-shaped, with a filiform appendage from the centre of each: *peduncles* mostly 4 pair, with a single one behind, 5 or 6-cleft at top.

81. *D. marginata*. Body oval, surrounded with a thin membranaceous undulate margin: *front* obtuse, crenate.

*Montague Linn. Trans. 7. p. 79. t. 7. f. 7.*

Body a quarter of an inch long and nearly as much broad, white tinged with pink in the middle: *feelers* 2, wrinkled or slightly feathered: *vent* furnished with feathered membranes.

## 2I. NEREIS. :

82. *N. noctiluca*. Blue-green, invisible to the naked eye, with 23 segments.

The Ocean. *Aman. Acad. 3. t. 3. Barbut tab. 4. f. 8.*

Body phosphorescent, illuminating the sea by night, very minute and agile, shining with a blue-green splendor.

83. *N. pectinata*. Smooth, prismatically coloured, with 14 rich gold tentacula and legs each side.

In the *Sabella tubiformis*. *Sowerby Brit. Miscel. t. 51.*



Body about an inch long, with numerous brown papillæ about the lip: *tentacula* simple: *legs* composed of tufts of hairs.

84. *N. pelagica*. Tawny, with a scarlet line down the back, convex above, with cirrate and warty peduncles.

The Ocean. *Br. Zool.* iv. t. 25. f. 33. *N. rufa*.

Body 4 or 5 inches long, composed of numerous articulations: *jaws* blackish-brown: *head* with a triangular white spot between the eyes, and 2 others at the sides: *bristles* ferruginous: *cirri* of the front sides and tail whitish: *tail* ending in 2 *cirri*.

85. *N. cærulea*. Glabrous, depressed, blueish-green, semitransparent.

The Ocean. *Br. Zool.* iv. t. 25. f. 32. *Barbut* t. 4. f. 11.

Body shining, about 4 inches long, with a groove along the belly: *segments* about 184.

86. *N. viridis*. Green, depressed: peduncles with lanceolate lamellæ or scales.

The Ocean. *Mull. Wurm.* t. 11. f. 1-6. *Linn. Trans.* v. p. 8.

Body 2 or 3 inches long, filiform, grass-green, with about 130 equal segments: *head* with 3 feelers each side: *eyes* 2, black: *proboscis* clavate, which it protrudes when touched: *tail* with 2 short *cirri*. The young are reddish, with snowy head, feelers, *cirri*, and scales.

87. *N. lamelligera*. Ochraceous, round tapering to both ends: *proboscis* stellate with 4 fleshy points: peduncles compressed, furnished with a semilunar scale above, and a larger semicordate-one beneath.

The Ocean. *Sow. Brit. Misc.* t. 30. *Shaw Misc.* t. 311.

Body nearly a foot long, ochre with a dark line down the middle of the belly, consisting of 200-550 segments: *head* with 4 feelers: *eyes* 2, black: *tail* bifid.

88. *N. iricolor*. Orange-green, prismatically coloured, orange-red at the lower extremity: feelers and eyes none.

Montague *Linn. Transact.* 7. p. 82.

Body about 3 feet long, nearly round, purplish-red near the anterior end: *upper-lip* somewhat protruded, whitish, with 4 transverse black dots at the base: *tail* suddenly tapering to an obtuse point: *segments* about 390, with as many tubercles and tufts each side.

89. *N. Margarita*. Changeable and greenish-brown, with a purple streak down the back: head 3-lobed.

Montague *Linn. Trans.* 7. p. 82.

Body 5 or 6 inches long, convex above, a little tapering, with about 74 segments and tufts: *head* 3-lobed, the 2 outer ones larger with a tubercle at their ends and 2 feelers at their base, the middle-one ending in 2 feelers: *mouth* beneath, protrusile, with a circle of numerous black specks: *tail* ending in 2 filaments.

90. *N. lineata*. Depressed, yellow, with numerous purple spots disposed in 6 lines.

Montague *Linn. Trans.* 7. p. 83.

Body an inch and a half long, with about 120 segments: *feelers* 6: *tail* ending in 2 short appendages.

91. *N. octentaculata*. Depressed, red, with a purple line along the back and a yellow spot at each segment.

Montague *Linn. Trans.* 7. p. 84.

Body 3 inches long, with between 80 and 90 segments and tufts : feelers 6, short, red, setaceous : eyes 4, one pair over the other.

## 22. APHRODITA. Sea Mouse.

92. *A. aculeata*. Oval, brown, beneath flesh-colour ; with long silky changeable gold-green hair each side the body.

The Ocean. *Br. Zool. iv. t. 23. f. 25. Barbut t. 4. f. 5.*

Body 4 or 5 inches long, convex above and clothed with short brown fir, beneath covered with a naked skin a little prominent in the middle : vent covered with 2 scales : mouth placed beneath : feet 30-36 each side, each composed of a tuft of 5 or 6 strong black spines intermixed with long gold-green hairs.

93. *A. annulata*. Pale yellow, oblong, tapering to both ends, smooth, annulate, with a minute spine on each ring running down the back.

*Pennant Brit. Zool. iv. p. 45. n. 28. t. 24. f. 28.*

Body 2 inches and a quarter long : feet small.

94. *A. scabra*. Oblong, with 2 rows of alternate scales down the back : mouth projecting, cylindrical.

*Br. Zool. iv. t. 4. f. 27. Barbut t. 4. f. 7.*

Body about an inch long, with 20 alternate scales and about as many feet each side.

95. *A. squamata*. Oblong, with 2 rows of large opposite rough ochraceous scales dotted with black.

*Brit. Zool. iv. t. 23. f. 26. Barbut t. 4. f. 6.*

Body about an inch long, resembling an Oniscus, clothed each side with 24 scales and furnished with as many feet : belly and middle of the back naked : feelers cloven : mouth concealed in an aperture : tail ending in a few short bristles.

96. *A. lipidota*. Oblong, with a red stripe down the back, and clothed with minute imbricate scales.

*Br. Zool. t. 24. f. 29. Baster subs. t. 4. f. 3. A-C.*

Body not an inch long, tapering towards the tail, with about 14 pair of very finely dotted scales, and 16 feet each side : feelers undivided.

## 23. AMPHITRITE.

97. *A. volutacornis*. Feelers yellow-brown with chesnut spots, convolute, with doubly ciliate fibres : proboscis none.

*Montague Linn. Trans. 7. p. 81. tab. 7. f. 10.*

Body about 5 inches long, with a dark purple indented membrane behind the head edged with white : feelers with numerous fibres on 2 spiral stems : scutell of 10 joints, yellow with purple sides : body dark purple, of about 80 segments, tongue-shaped at the end, with 4 rows of plates above and a slight groove down the middle.

98. *A. Ventilabrum*. Feelers pale with purple spots, their fibres ciliate on the inner margin ; one with 54 fibres, the other with 36 : proboscis none.

*Sowerby Miscell. t. 12. Shaw Miscell. t. 324.*

Body pale red, with about 150 yellow peduncles each side, inclosed in a clay-coloured tube composed of 2 coats which are cartilaginous, the outer-coat darker and rougher.

99. *A. rosea*. Feelers white with crimson spots : body brown, with shining golden tufted peduncles : proboscis none.

Sowerby Brit. Miscell. tab. 67.

Body hardly 2 inches long, inclosed in a brown case, yellowish towards the head: feelers of about 12 fibres each.

100. *A. campanulata*. Feelers pale with black spots: body striped red and yellow, with white peduncles: proboscis bell-shaped at the end.

In the *Serpula triquetra*. Sowerby Miscell. t. 31.

Body about an inch long, yellow with red stripes, furnished with about 6 feet each side: feelers with each 10 or 11 fibres: proboscis white, ending in a bell-shaped tube which projects a bifid tongue.

## 24. SPIO.

101. *Sp. seticornis*. With thin capillary striate feelers.

The Ocean. Baster op. subsc. 2. p. 134. tab. 12. f. 2.

Body about 3 inches long, whitish with a tinge of green, with a red line down the middle of the back, blackish-grey on the fore-part with transverse white striæ, sea-green behind: head pale.

## 25. NAIS.

102. *N. serpentina*. Body serpentine, with red spiral intestines and triple black collar.

Stagnant Waters. Shaw Miscell. t. 270.

Body about 9 lines long: peduncles warty, with 3 hooked bristles.

103. *N. proboscidea*. With single lateral bristles, and very long proboscis.

Stagnant Waters. Shaw Miscell. t. 379.

Body 3 lines long, hyaline, with a blackish flexuous intestine; each segment with a single longish bristle each side: head forked, armed with a mouth and tongue: vent terminal.

104. *N. digitata*. With single lateral bristles: tail armed with 6 unequal retractile processes.

Stagnant Waters. Shaw Miscell. t. 452.

Body 4 lines long, with a reddish vein down the middle, furnished beneath with a double row of minute ciliate protuberances: eyes on tail rounded.

## 26. LERNÆA.

105. *L. Cyprinacea*. Body obclavate: thorax cylindrical forked: tentacula lunate at top.

On the Carp and Roach. Barbut t. 7. f. 3.

Body about half an inch long, hardly larger than a straw, pale and somewhat pellucid, thrust out of a kind of sheath, with 3 obtuse tubercles towards the other extremity: mouth with 2 soft fleshy processes near it, and on each side another soft lunate process.

106. *L. Salmonea*. Body obovate: thorax inversely heart-shaped: arms approximate, linear.

On the Salmon. Barbut t. 7. f. 4.

Body 6 lines long, soft, pale: head small, oblong, rather convex, with horizontal lips, the upper-lip armed with 2 rigid moveable hooks, the lower shorter and cloven: abdomen obovate, broader than the last: ovaries whiter, cylindrical, granulate within, as large as the whole animal.

107. *L. Spratti*. Body oblong, red: head with 2 barbs: neck notched: ovaries linear, green.

On the Sprat, Sowerby Brit. Miscell. tab. 68.

Body about 2 inches long, shaped like an oat, obliquely truncate behind: neck long, barbed: mouth rather large, under the head.

108. *L. Encrasicoli*. Body cylindrical, horn-colour; head with 2 barbs: ovaries filiform, white.

Found attached to the bodies of the *Clupea Encrasicolus* and *Sprattus*, frequently in Swansea bay.

Body differing from the last in not tapering to the extremities, in being of a brown-horn-colour, and in having the oviducts very long, filiform, and clear white.

## 27. SEPIA. Cuttle-fish.

109. *S. octopus*. Body without tail or appendage: pedunculated tentacula or longer arms none: arms beset with a double row of suckers.

*Br. Zool. iv. t. 44. Sow. Miscell. t. 48. Barbut t. 8. f. 1.*

Body growing to a great size, short, inflated at the base: arms as long as the body, tapering to a point, clothed with 2 rows of alternate suckers on the inside: suckers shaped like the cup of an acorn, furnished with numerous hooks.

110. *S. officinalis*. Body without tail, with a crenate margin each side: peduncled tentacula 2: arms beset with 4 rows of suckers.

*Brit. Zool. iv. p. 55. Barbut t. 8. f. 2.*

Body ovate; the margin interrupted at the bottom: tentacula or longer arms 4 times as long as the others, their tips spatulate and furnished within with numerous suckers: arms shorter than the body, ovate, pointed.

111. *S. media*. Body cylindrical tapering to a point: tail pointed, finned and carinate each side: peduncled tentacula 2.

*Br. Zool. iv. t. 49. f. 45. Barbut t. 8. f. 3.*

Body ending in a point, furnished with a winged membrane each side commencing below the middle of the body, greenish or brown: eyes blue.

112. *S. Loligo*. Body cylindrical, furnished with a flatish rhombic sharp-edged membrane at the tail: peduncled tentacula 2.

*Brit. Zool. iv. t. 27. Barbut t. 8. f. 4.*

Body reddish-brown, differing from the last in not gradually tapering to a point: eyes blue: dorsal-bone lanceolate, transparent, shaped like a pen.

113. *S. Sepiola*. Body rounded at the base, with a rounded wing-like process at the base each side: peduncled tentacula 2.

*Brit. Zool. t. 29. f. 46. Barbut t. 8. f. 5.*

Body not longer than the head and neck: tentacula as long as the body; wings nearly circular.

## 28. TRITON.

114. *Tr. littoreus*.

*Barbut. t. 7. f. 2. Philos. Trans. 50. t. 34. f. A.*

Body oval, dilated and lobed at the lower end: head oblong, rounded, not compressed, terminated by a tough membrane connecting all the arms at their base: mouth placed at the base of the tentacula: proboscis long, tapering to a point, annulate, cartilaginous: arms 6 pair, the 3 lower-pair furnished with a moveable thumb, all jointed, involute and ciliate on the inner-margin.

## 29. MEDUSA.



115. *M. fusca*. Body with 16 brown rays; and a brown circle in the middle; the circumference edged with alternate oval tubercles and crooked fangs.  
*Borl. Cornw. p. 256. t. 25. f. 7. 8. Br. Zool. n. 48.*  
 Rays pointing from the circumference to the centre: *tentacula* 4, jagged, a little longer than the body.
116. *M. purpurea*. Body with pale purple rays, and a light purple cross in the middle, between each bar of which is a deep purple horse-shoe-shaped mark.  
*Borl. Cornw. p. 257. t. 25. f. 9. 10. Br. Zool. 4. 49.*  
 Rays diverging from the circumference: *tentacula* 4, short, thick, not longer than the body.
117. *M. tuberculata*. With 15 brown rays meeting at the centre, and small oval tubercles round the margin.  
*Borl. Cornw. t. 25. f. 11. 12. Barbut t. 9. f. 8.*  
*Tentacula* 4, plain, much longer than the body.
118. *M. undulata*. Margin undulate, with fangs on the projecting parts; beneath 4 orifices, between which is a stem divided into 8 ragged tentacula.  
*Borl. Cornw. t. 25. f. 15. Barbut. t. 9. f. 9.*
119. *M. lunulata*. Margin tubercled; beneath 4 conic appendages forming a cross, with several leaf-like serrate-ones surrounding it.  
*Borl. Cornw. t. 25. f. 16. 17. Br. Zool. iv. n. 52.*  
*Tentacula* 8, not exceeding the edges of the body, between each of which is a semilunar aperture.
120. *M. simplex*. With a plain circumference and 4 apertures beneath: *tentacula* none.  
*Borl. Cornw. t. 25. f. 13. 14. Br. Zool. iv. n. 53.*
121. *M. cruciata*. Margin fringed with fine fibres; the disk marked with a white cross, each arm of which has a blackish spot.  
 The Sussex coast. *Barbut Worms, t. 9. f. 1.*  
 Body like a transparent colourless jelly, surrounded at the edge with a fringe of fibres.
122. *M. capillata*. Margin with 16 indentures; beneath with 16 rays meeting at the centre, where they are surrounded by numerous fibres.  
 Kentish coast. *Barbut Worms t. 9. f. 3.*  
 Body whitish, semipellucid, convex, fragile, flat beneath with a rough circle; the margin divided into 8 portions, each of which is emarginate.

### 30. ASTERIAS. *Star-fish.*

#### A. *With 5 stellate rays.*

123. *A. rubens*. Pale orange, with lanceolate convex rays every where clothed with small spines.  
*Br. Zool. t. 30. f. 58. Baster subs. t. 12. f. 1-6.*  
 Body 14 inches in diameter, varying in colour, but generally lemon-colour marbled with dark brown, beneath whitish: spines white.
124. *A. spinosa*. Rays lanceolate, of nearly equal thickness, beset with numerous spines or tubercles.  
 Resembles the last, but the rays are not convex.  
*Borl. Cornw. t. 25. f. 18. Br. Zool. iv. n. 62.*

125. *A. membranacea*. Rays broad, membranaceous, very thin: beneath with 5 convex ribs.

*Br. Zool.* iv t. 31. f. 59. *Linck. stell. mar.* t. 1. f. 2.

Body flat, with a broad membrane between the rays.

126. *A. gibbosa*. Brown, very convex, covered with a rough skin, with short broad rays slightly projecting.

*Borl. Cornw.* t. 25. f. 25. 26. *Linck.* t. 3. n. 20.

127. *A. clathrata*. Rays short, thick, cancelled above, hirsute underneath.

*Linck.* t. 14. n. 23. t. 7. n. 9. *Br. Zool.* iv. n. 55.

128. *A. oculata*. Purple, with smooth dotted or punctured rays divided nearly to the base.

*Br. Zool.* t. 30. f. 56. *Linck.* t. 36. n. 62.

129. *A. equestris*. Disk tubercled: margin with oval plates, with 3-6 tubercles on each: tentacula rather clavate.

*Sowerby. Miscell.* t. 63. *Linck.* t. 12. n. 21. t. 26. n. 42.

Body red: rays a little projecting: plates on the margin surrounded with small stud-like protuberances: feelers flattish, rather clavate.

130. *A. glacialis*. Disk with tubercles disposed in a circle: rays angular, the angles with prickly protuberances.

*Linck.* t. 38. 39. n. 69. *Br. Zool.* iv. n. 54.

Body when alive rufous undulate with white, sometimes grey, brown, or green: rays thick, lanceolate, with 5 or 7 prickly angles: tentacula numerous, pellucid, with a row of small pinnules each side.

#### B. With 5 radiate or filiform rays.

131. *A. Caput Medusæ*. With divided and repeatedly subdivided rays: disk and rays granular: mouth depressed.

*Barbut* t. 10. f. 12. *Shaw Miscell.* t. 103.

Body pale red: rays divided, each of the divisions branching into 2 others, which mode of subdivision is continued to a vast extent, gradually decreasing in size, till at length the ramifications amount to many thousands, forming a beautiful net-work.

132. *A. Ophiura*. Disk scaly: rays quadrangular, with a single row of scales down each.

*Br. Zool.* iv, t. 32. f. 62. *Barbut.* t. 10. f. 9.

Body small, glabrous, white, grey, or reddish, orbicular, entire: rays like a serpents' tail, 4 times as long as the body, clothed with a row of divergent solid scales.

133. *A. minuta*. Body round, entire, with long slender hirsute rays.

Tenby Coast. *Brit. Zool.* iv. n. 61.

134. *A. brachiata*. Body nearly circular, covered above with oval scales in 10 alternate broad and narrower rays: rays jointed, spinous down the sides.

*Montague Linn. Trans.* 7. p. 84.

Body hardly half an inch in diameter, the rays 7 or 8 inches long, purplish-brown, rough between the arms with minute warts: rays furnished at the sides with small moveable spines at each joint, 8 or 9 in a row.

- 135. *A. sphærulata.*** Body 5-lobed, glabrous above the aperture; beneath 5-pointed, with a small globular head between each ray: rays jointed, hirsute down their sides.  
*Anglesea. Brit. Zool. iv. tab. 32. fig. 63.*
- 136. *A. varia.*** Body circular, entire, with 10 alternate broader and narrower radiate stripes; the narrow-ones with lozenge-shaped extremities: rays hirsute, annulate with red.  
*Borl. Cornw. t. 25. f. 21. Br. Zool. iv. n. 65.*
- 137. *A. aculeata.*** Body circular, entire, with 10 alternate broader and narrower radiate stripes, all of them simple at the ends, rays hirsute.  
*Borl. Cornw. t. 25. f. 19. Br. Zool. iv. n. 66.*
- 138. *A. fissa.*** Body circular, with 5 deep notches, and 5 pale radiate stripes: rays hirsute.  
*Borl. Cornw. t. 25. f. 20. Br. Zool. iv. n. 68.*
- 139. *A. hastata.*** Body somewhat pentangular, indented, brownish-red with 10 alternate broader and narrower ochraceous stripes, all broader at their extremities: rays jointed, hirsute.  
*Borl. Cornw. t. 25. f. 22. Br. Zool. iv. n. 67.*
- 140. *A. nigra.*** Body pentangular, black, with 5 white radiate stripes; rays hirsute, olive, tessellate with deeper shades.  
*Borl. Cornw. t. 25. f. 23. Br. Zool. iv. n. 69.*
- 141. *A. pentaphylla.*** Body in 5 ovate lobes: rays hirsute down the sides, tessellate above and below with green or blue.  
*Borl. Cornw. t. 25. f. 24. Br. Zool. iv. n. 64.*

C. With more than 5 rays.

- 142. *A. papposa.*** Body with 12-14 lanceolate rays, surrounded at the edges with short fascicular processes: body muricate.  
*Barbut. t. 10. f. 2. Shaw. Miscell. t. 418.*  
*Body above ferruginous spotted with white, the rays paler at the ends: rays shorter than the body, with black grooves underneath.*
- 143. *A. pectinata.*** With 10 pinnate filiform rays, and as many short simple ones underneath.  
*Br. Zool. iv. t. 33. Barbut. t. 10. f. 11.*  
*Body small, red, covered above with 5 unequal valves: apertures 2, one at the confluence of the valves, the other in the largest valve: longer-rays with numerous short ramifications, furnished beneath with hollow tubes, from which issue small transparent filiform flexible bodies; shorter-rays ending in an incurved claw.*

31. ECHINUS. Sea-egg. Sea Urchin.

*Obs.* Such of this genus as have been hitherto found in a fossile state only, will be described under the genus *Helmintholithus*, among the petrifications.

A. Vent vertical.

- 144. *Ech. esculentus.*** Nearly globular, with 10 porous su-

tures; the pieces covered with small tubercles supporting the spines.

*Br. Zool. t. 34. Barbut. t. 11. f. 1. Shaw. Misc. t. 223.*

Shell reddish or yellowish: *spines* short, violet, losing their colour and falling off when dead: *pores* in about 3 rows: *tubercles* pale, surrounded with a circle of lesser ones: *vent* closed by a coriaceous membrane covered with spines.

2. Lefs, depressed at top, with narrower sutures.

*Easter. op. subs. 3. p. 112. t. 11. f. 2-8.*

Shell with fewer tubercles, and a ferrate line down the middle of the pieces: *pores* of the futures in alternate rows of 2 or 3 foramina.

**145. Ech. Cidaris.** Hemisphærical, depressed, with 5 flexuous linear sutures; the pieces alternately bifarious.

*Scotland. Sowerby Brit. Miscell. t. 44.*

Shell a compressed globe: the *pieces* granulate, with 2 rows of alternate protuberances furnished with perforated papillæ, surrounded with a circle or two of granulations, and separated by a groove running round them: *spines* elongated, granular, in 2 rows, with 2 rows of smaller ones at their base: *mouth* covered with imbricate obtuse spines.

#### B. Vent underneath.

**146. Ech. lacunosus.** Ovate, heart-shaped, gibbous, with 5 depressed ovate porous sutures placed in a stellate manner.

*Br. Zool. iv. t. 35. Barbut. t. 11. f. 8.*

Shell purple at top; the spaces between the futures tubercled in waved rows; beneath studded and divided by 2 smooth spaces: *spines* very long, mixed with shorter ones.

**147. Ech. Spatagus.** Ovate, a little heart-shaped, gibbous, with 4 depressed porous grooved sutures placed in a stellate manner.

*Br. Zool. iv. t. 34. f. 75. Barbut. t. 11. f. 7.*

Shell extremely brittle, gibbous at one end, and marked by a deep groove instead of the fifth future at the other, tubercled beneath: *pores* in a double row along each side of the grooves: *spines* slender, bristle-like.

### ORDER III. TESTACEA. SHELLS.

#### A. With more than two valves.

##### 32. CHITON.

**148. Ch. marginatus.** With 8 smooth valves, reflected and serrate on the margin, carinate down the back.

*Br. Zool. t. 36. f. 2. Barbut. t. 1. f. 4.*

Shell 6 lines long and 4 broad, grey or brown, sometimes mottled, oblong-oval, rough on the surface: *valves* imbricate over each other in a point.

**149. Ch. lævis.** With 8 smooth valves, even on the margin, carinate and beaked on the back.

*Brit. Zool. t. 36. f. 3.*

Shell oblong, half an inch long and a quarter broad, deep rufous-brown, sometimes mottled with yellowish-white, with mostly a pale line down the back, sometimes finely striate transversely; the margin broad and finely reticulate: *valves* beaked in the centre.



- 150. Ch. cinereus.** With 8 valves, nearly smooth, oval, carinate, beaked on the back, slightly ciliate on the margin.

*Chemn. Conch. 8. tab. 96. f. 818. Mont. Shells, p. 3.*

Shell a quarter of an inch long, cinereous, reddish when alive, compressed, a little reflected on the hinder angle at the base, with a rather broad margin.

- 151. Ch. albus.** With 8 valves, smooth, oval, not carinate; the first valve notched on the hind-part.

*Barbut. t. 1. f. 1. Chemn. Conch. 8. t. 96. f. 817.*

Shell less than the last, pure white.

- 152. Ch. fascicularis.** With 8 valves, nearly smooth, slightly carinate, surrounded at the margin with tufts of hairs.

*Chemn. Conch. 10. t. 173. f. 1688. Montag. Shells. p. 5.*

Shell cinereous, slightly carinate.

- 153. Ch. crinitus.** With 7 valves, thickly clothed with short hairs.

About 6 lines long. *Br. Zool. iv. t. 36. f. 1.*

It is probable that these hairs are a species of marine Conferva.

- 154. Ch. discors.** With 7 valves, carinate, strongly beaked; the 5 middle-valves divided transversely from the anterior base to the beak.

Salcomb Bay. *Montague Brit. Shells. p. 3. n. 3.*

Shell half an inch long, oblong; valves smooth or faintly striate on the upper-part, very fine shagreen on the lower, the end-ones rufous-brown, the rest dark cinereous; beaks frequently rufous; margin moderately broad, faintly reticulate.

### 33. BALANUS. Acorn-shell.

- 155. B. communis.** Conic, ribbed: lid of 4 valves, striate transversely, with a longitudinal groove on the 2 longest.

*Br. Zool. t. 37. f. 4. Donovan. t. 30. f. 1.*

Shell sometimes an inch in diameter, and nearly 3 quarters high, grey-brown, rugged, composed of about 6 valves: lid pointed.

- 156. B. balanoides.** Somewhat conic, smooth, ribbed: lid of 4 valves; the 2 upper-slightly striate transversely, the other smooth.

*Br. Zool. t. 37. f. 5. Donovan. t. 36. f. 2. 3. Da Cost. t. 17. f. 7.*

Shell half the size of the former, sometimes much depressed and dilated at the base, white, smooth, often deeply grooved at the base, of 6 valves divided by a deep furrow: lid more obtuse.

- 157. B. punctatus.** Slightly conic, rugged, ribbed: lid 4-valved, the upper longitudinally striate, the edges of the upper and lower closely united at top, indented, and locking into each other.

Devonshire. *Montague Brit. Shells. tab. 1. f. 4.*

Shell about a quarter of an inch broad, and not much higher, dull brown, very rugged, obtusely ribbed: lid of 4 valves, the upper-one with a few longitudinal ridges, the rest punctured.

- 158. B. rugosus.** Nearly cylindrical, grooved; lid of 4 rough angular erect valves, forming 4 distinct slightly reflected points.

*Lepas borealis. Donovan Brit. Shells, tab. 160.*

Shell about half an inch high, and less in diameter, generally divided into 6 compartments by furrows which become broad towards the top, where it spreads into angular points, wrinkled or striate longitudinally, sometimes smooth, white or purplish-red: aperture large, the lid transversely ribbed.

159. *B. elongatus*. Elongated, clavate, with 3 wide and 3 narrow compartments, wrinkled longitudinally, faintly striate transversely.

*Br. Zool. t. 37. f. 5. a. Donovan. t. 36. f. 3.*

Shell 2 inches long, 4 lines broad at the base, white, cylindrical, cloven above the lid, with obtuse compartments.

160. *B. Tintinnabulum*. Conic, obtuse, with 3 raised compartments contracting to a point upwards and longitudinally striate, and 3 depressed-ones contracting to a point downwards and transversely striate.

*Donovan t. 148. Barbut t. 1. f. 6.*

Shell nearly 2 inches long, less in diameter, purplish varied with white and red, angular: lid obtuse, of nearly equal valves.

161. *B. costatus*. Somewhat conic, with numerous equidistant ribs diverging from the aperture.

*Donovan Brit. Shells. 1. tab. 30. f. 2.*

Shell small, whitish, with about 18 ribs.

162. *B. conoides*. Conic, smooth, finely reticulate, with pointed compartments: aperture very narrow.

*Donovan Brit. Shells. 1. tab. 36. f. 3.*

Shell about 4 lines wide, purplish; valves divided at top, and pointed: aperture very small.

163. *B. intertextus*. Slightly depressed, with interwoven obliquely striate valves; the margin at the base irregularly serrate.

*Br. Zool. iv. t. 38. f. 1. Donovan t. 36. f. 1. Lepas striatus.*

Shell hardly a quarter of an inch wide, white, strongly and obliquely ribbed: aperture oblique, closed by the lid.

164. *B. Diadema*. Somewhat compressed, with 6 prominent longitudinally ribbed valves, alternating with as many depressed transversely striate ones.

*Donovan Shells t. 56. f. 1. 2. Da Costa t. 17. f. 2. 2. 2.*

Shell an inch high, and about 2 wide, roundish, dirty-white, with transverse striae on the sides of the valves: aperture funnel-form, 6-sided within: base concave, furnished with divisions or cells in a radiate manner.

### 34. LEPAS. Bernacle.

165. *L. anatifera*. With 5 valves, smooth; the dorsal-valve rounded at the sides, and slightly carinate.

*Br. Zool. iv. t. 38. f. 9. Donovan. t. 7. Da Costa. t. 17. f. 3.*

Shell an inch and a half long, bluish-white, compressed: valves yellow at the margins, obscurely striate; the 2 larger-ones triangular, the 2 top-ones about half the size, the dorsal-one long, curved, narrow, rounded on the back, inclosing the others: peduncle long, wrinkled and darker towards the shell.

166. *L. anserifera*. With 5 valves, strongly striate in a radiate manner; dorsal-valve compressed at the sides, sharply carinate.

*Donovan t. 166. f. 2. Lister t. 440. f. 283.*

Shell about an inch long, resembling the last, except in being strongly striate and somewhat reticulate, the valves sharper and

more pointed, the sides of the dorsal-one compressed and brought to a fine carinate edge down the middle.

167. *L. fascicularis*. With 5 valves, striate; dorsal valve much spread out and forming a sharp prominent angle at the base.

*Ellis. Zooph. p. 197. t. 15. f. 6. Donovan t. 164.*

Shell with the upper-valves pointed and turning back at the tip, a little convex in front; the dorsal-valve dilated at the base into an acute angle.

168. *L. sulcata*. With 5 valves, strongly ribbed; dorsal-valve, somewhat compressed, longitudinally striate, with a smooth slightly carinate edge.

*Montague Brit. Shells. p. 17. tab. 1. fig. 6.*

Shell about a quarter of an inch long, dirty white, nearly triangular: lower-valves with 15 strong ribs; upper-ones pointed at top, narrowing to a point downwards, with 7 or 8 ribs and smaller intermediate-ones: peduncle short, dusky.

169. *L. Scalpellum*. With 13 valves, roughish; dorsal-valve compressed, running into a sharp process about half way up.

*Montague p. 18. t. 1. f. 4. Donovan Shells. t. 166. f. 1.*

Shell 6 lines long, light brown, not striate, covered with short hairs, much compressed, obliquely truncate at top: valves resembling scales, 6 each side; dorsal-one rounded at the edge at the base: peduncle very short, annulate, hairy.

### 35. PHOLAS.

170. *Ph. Dactylus*. Oblong, rough, with reticulate muricate striæ on the anterior end: hinge reflected forming several cells at the back.

*Br. Zool. t. 39. f. 10. Donovan Shells t. 118.*

Shell more than an inch long, above 3 broad, white, thin, brittle, a little reticulate, ending in a beak forming a large gape, with 4 accessory valves.

171. *Ph. parva*. Ovate, rough, reticulate, muricate at the anterior end: hinge reflected, without cells.

*Br. Zool. t. 40. f. 13. Montague Shells t. 1. f. 7. 8.*

Shell half an inch long, an inch broad, ending in a kind of beak at the larger end, with a single plate at the back but none below the hinge: teeth slender, curved, with a knob at the base.

172. *Ph. crispata*. Somewhat oval, reticulate on the anterior half and separated from the plain half by a broad furrow down the middle.

*Br. Zool. iv. t. 40. f. 12. Donov. t. 62. 69.*

Shell nearly 2 inches long, 3 broad, gibbous, whitish, obtuse, very open at both ends, striate transversely: hinge reflected, smooth: teeth long, curved, without the knob at the base.

173. *Ph. candida*. Oblong, muricate on all parts with decussate striae: one valve with an additional tooth-like process.

*Br. Zool. iv. t. 39. f. 11. Donovan Shells t. 132.*

Shell near an inch long, an inch and a half broad, thin, brittle, whitish, slightly muricate at the larger end, with an accessory valve at the hinge: hinge reflected, smooth: teeth slender, incurved, with an erect process in one valve on the margin above the tooth.

174. *Ph. striata*. Somewhat conic, strongly reticulate on the upper part, irregularly striate on the lower.

*Donovan's Shells* t. 117. *Chemn. Conch.* 8. t. 102. f. 864-866.

Shell half an inch long, 3 quarters broad, white, the striæ here and there decussate, the part about the hinge smooth, the lower-end gaping : tooth long, slender, much curved.

### B. Bivalves.

### 36. MYA.

175. *M. Glycemeris*. Oblong-oval, coarse, lamellar, with transverse wrinkled striæ, gaping at both ends, obliquely truncate before and behind the beak : primary tooth of the hinge very thick.

*Donovan* t. 143. *Lister* t. 414. f. 258.

Shell 5 inches long, 8 or 9 broad, grey or ochraceous, with an irregular margin : beak nearly central, slightly indented both sides : hinge with a lesser tooth and a series of wrinkles.

176. *M. truncata*. Suboval, truncate and much gaping at the smaller end : tooth broad, thick, very obtuse, projecting, erect.

*Br. Zool.* t. 41. f. 14. *Donovan* t. 92. *Da. Cost.* t. 16. f. 1.

Shell 2 inches and a half long, 3 and a half wide, covered with a yellowish skin, white under the skin, marked with concentric wrinkles.

177. *M. arenaria*. Oval, rounded behind : tooth broad, thick, very obtuse, projecting, erect, with a small lateral-one.

*Donovan* t. 85. *Br. Zool.* iv. t. 42.

Shell 2 inches and a half long, 3 wide, covered with a brown skin, concentrically wrinkled : resembles the last, except in not being truncate at the gaping end ; tooth with a projection near the base.

178. *M. margaritifera*. Oblong, slightly kidney-shaped, decorticated near the hinge, with a single tooth in one valve locking into a forked one in the other.

*Donovan* t. 73. *Br. Zool.* t. 43. *Da Costa* t. 15. f. 3.

Shell 2 inches long, 5 broad, a little contracted in the middle at the thinner end, thick, covered with a black skin which is worn off on the protuberant parts near the hinge, transversely wrinkled, pearly greenish within : teeth strong.

179. *M. Pictorum*. Oval, in each valve a broad crenate tooth, with 2 lateral laminae in one valve, and one in the opposite locking into each other.

*Donovan* t. 89. *Brit. Zool.* tab. 43. f. 17.

Shell nearly 2 inches long, and 4 broad, dull green, nearly black at the smaller end, concentrically wrinkled, pearly within : beak near the larger end.

180. *M. ovalis*. Oval-oblong, rounded at both ends : teeth crenate, a single one and lateral lamina in one valve, and a forked one and 2 laminae in the other

*Donovan* t. 174. *Chemn. Conch.* 6. t. 1. f. 6.

Shell an inch long, nearly 2 wide, olive-green, concentrically wrinkled, a little indented in front, pearly within : beak near one end : hinge nearly straight.

181. *M. dubia*. Oval, thin, brittle, gaping, light rufous, with the rudiment of a tooth in one valve projecting inwards.



*Brit. Zool. t. 44. f. 19. Donovan t. 108.*

Shell not an inch long, shaped like a pistachia nut, with a large oval gape opposite the hinge, concentrically striate, sometimes with yellowish rays, sloping at the anterior end, white within: *beak* near one end.

182. *M. inequivalvis*. Somewhat triangular, strong, white, with the under-valve much larger.

*Montague p. 38. Walk. min. Shells. f. 35. Gardium.*

Shell 4 lines wide, thick, opaque, transversely striate, often covered with a brown skin; the upper-valve not half the size of the other and obscurely striate, the under-valve deep: *beak* central, very prominent: *tooth* strong, erect, slightly recurved, without lateral ones.

183. *M. suborbicularis*. Nearly orbicular, yellowish-white: in one valve a single tooth locking into a double one in the other, with a laminate tooth in each valve behind the beak.

*Montague British Shells. p. 39. n. 8.*

Shell 4 lines long, and about 5 broad, somewhat pellucid, often covered with a brown skin, faintly striate transversely: *beak* small, pointed, turning to one side: *valves* closed.

184. *M. declivis*. Oval, thin, brittle, suddenly sloping near the gaping end: valves with each a broad tooth-like plate projecting inwards.

*Donovan. t. 82. Montague p. 48. n. 9. M. pubescens.*

Shell about 2 inches broad, 1 and a quarter long, whitish, truncate at the smaller end, slightly striate concentrically, one valve turning up behind the slope and embracing the edge of the other: *beak* nearly central, turning a little sideways.

185. *M. prætenuis*. Oval, flat, thin, brittle, a little gaping: valves with a single tooth in each, hollowed in the middle, projecting horizontally inwards, and closing over each other.

*Montague Brit. Shells. tab. 1. f. 2. Donovan. t. 176.*

Shell an inch broad, half as much long, whitish, with a few concentric striæ, not truncate: *beak* small, pointed, turning to one side, nearly central.

186. *M. distorta*. Oval, thin, brittle, convex, rugged, distorted: valves with a broad subtriangular tooth in each, hollowed in the middle, projecting horizontally inwards.

*Montague Brit. Shells, p. 42. tab. 1. fig. 1.*

Shell an inch broad, nearly as much long, oval more or less inclining to orbicular, white, indented at the margin and variously distorted, not truncate: *beak* projecting, nearly central, not turning to one side.

187. *M. bidentata*. Suboval, thin, compressed, smooth: hinge with 2 broad erect laminate teeth in one valve standing obliquely, and none in the other.

*Montague Brit. Shells, p. 44.*

Shell the eighth of an inch long, rather more broad, dirty white, without striæ: *beak* small, near one end, a little reclined: *teeth* rather distant from each other, with a small hollow between them.

### 37. SOLEN. *Razor-sheath.*

188. *S. Siliqua*. Linear, straight: hinge with a single

tooth in one valve, and a lateral lamina; in the other valve two, with a lateral inclined lamina.

*Br. Zool. t. 45. f. 20. Donovan. t. 46. Da Cost. t. 17. f. 5.*

Shell an inch long, 8 broad, truncate at one end, a little rounded at the other, olive-brown, grey with purplish bands when worn, divided diagonally by a conoid cinereous mark, one part striate longitudinally the other transversely: *hinge* near one end.

189. *S. Novacula*. Linear, straight: hinge with a strong obtuse curved tooth in each valve, without lateral laminae.

*Montague Brit. Shells, p. 47.*

Shell resembling *S. Siliqua*, except in the teeth.

190. *S. Ensis*. Linear, a little bowed: hinge with a single tooth and lateral lamina in one valve, locking into two teeth and a double lamina in the other.

*Br. Zool. t. 45. f. 22. Donovan t. 50. Lister t. 411. f. 257.*

Shell hardly an inch long, about 5 broad, coloured divided and striate like *S. Siliqua*, truncate and a little rounded at both ends: *hinge* at one end.

191. *S. Vagina*. Linear, straight, a little reflected at the end next the hinge: in each valve a single compressed tooth without laminae.

*Br. Zool. t. 46. f. 21. Donovan. t. 110. Barbut t. 2. f. 4.*

Shell 3 quarters of an inch long, about 4 broad, orange-yellow, striate longitudinally, rather truncate at both ends: *hinge* close to one end.

192. *S. pellucidus*. Oblong, slightly bowed, pellucid: hinge with a single tooth in one valve locking into 2 in the other, with a lateral lamina in each.

*Brit. Zool. t. 46. f. 23. Donovan. t. 153.*

Shell a quarter of an inch long, about an inch broad, thin, brittle, covered with a greenish skin, rounded at each end.

193. *S. Legumen*. Straight, linear-oblong: hinge near the middle, with a single tooth in one valve, and 2 in the other, and a hook-like process in each, pointing towards the cartilage.

*Br. Zool. t. 46. f. 24. Donovan t. 53.*

Shell nearly an inch long and 3 broad, thin, white or covered with a yellowish skin, rounded at both ends, radiate from the hinge to the margin.

194. *S. antiquatus*. Oblong, a little contracted opposite the hinge: hinge central, a single subulate tooth in one valve, locking between two in the other.

*Donov. t. 114. Br. Zool. t. 46. f. 25. S. Cultellus.*

Shell near an inch long, 2 broad, thin, white or covered with a yellowish-brown skin, semitransparent, concentrically striate, rounded at the ends: *teeth* projecting beyond the margin, in one valve a single subulate one, in the other two, one of which is subulate, the other broad.

195. *S. minutus*. Suboval, transversely wrinkled: valves with each 2 rows of concave spines running from the beak.

*Montague. Brit. Shells. t. 1. f. 4. Chemn. conch. 6. t. 6. f. 51. 52.*

Shell a quarter of an inch long, half an inch broad, whitish, truncate close to the hinge, with generally dissimilar valves.

196. *S. vespertinus*. Oval-oblong with pale purple rays:

Hinge nearly central with a single tooth in one valve locking between 2 in the other, and a projecting lamina in each.

*Br. Zool. t. 47. f. 27. Donovan t. 41. f. 2. Tellina.*

Shell an inch and a quarter long, nearly 2 and a half wide, white or pale flesh-colour, radiate with purple from the beak, concentrically striate, purplish within.

197. *S. squamosus*. Nearly orbicular, flat, thin, pellucid, minutely punctured: hinge central, with 2 double teeth diverging each side.

*Montague Brit. Shells. p. 565.*

Shell 4 lines long, half an inch broad, white with a few concentric striæ, within with obscure rays from the hinge: teeth erect, a furrow on the margin dividing each into two laminae nearly to the beak, where they unite and form an acute angle.

198. *S. Pinna*. Suboval, pellucid, semicircular opposite the hinge: hinge running straight from the beak and connecting the valves nearly to the end: in each valve a blunt tooth running straight from the beak.

*Montague Brit. Shells. p. 566. tab. 16. f. 3.*

Shell 4 lines long, 3 quarters of an inch broad, thin, brittle, white, strongly wrinkled concentrically, smaller and declining a little towards the beak: valves one a little convex, the other somewhat concave: beak small, near the smaller end: teeth not locking into one another.

### 38. TELLINA.

199. *T. Ferroensis*. Oblong-oval, flat, radiate with red and white and finely striate transversely: hinge without lateral teeth.

*Da Costa t. 14. f. 1. Donovan. t. 60. T. trifasciata.*

Shell 3 quarters of an inch long, an inch and a half broad, more produced and obliquely truncate on the fore-part: teeth 2, oblique, in each valve: beak small, nearly central, with an oblique elevated ridge running down to the end where it forms an angle.

200. *T. squalida*. Sub-oval, flat, pointed at the small end, pale yellowish, faintly striate concentrically: hinge with 2 teeth in one valve and 3 in the other, the lateral one remote and laminate at the base.

*Donov. t. 163. Montague Brit. Shells. p. 56.*

Shell an inch long, an inch and 3 quarters broad, thin, sometimes covered with a brown skin; one valve reflecting a little at the small end and forming a depression on the surface, the other turning inwards to correspond: beak small, central.

201. *T. læta*. Oval-oblong, flat, equilateral, with strong concentric striæ: hinge with 3 teeth and a remote lateral lamina, the outer tooth on the anterior side cloven.

*Donovan t. 123. T. inequistriata. T. punicea. Gmel.*

Shell 3 quarters of an inch long, an inch and 4 lines broad, yellowish-white or pale rosy, unequally striate, equivalve: beak small, pointed: hinge in the middle.

202. *T. donacina*. Sub-oval, flattish, much sloping on the anterior-end, nearly smooth, semipellucid: hinge with 2 teeth in one valve, and one in the other.

*Chem. Conch. 6. t. 12. f. 119. Linn. Trans. viii. t. 1. f. 7.*

Shell half an inch long, 3 quarters broad, yellowish radiate with red, obscurely striate: *beak* small, nearer to one end: *teeth* in one valve 2, that behind the beak extending into a lateral lamina.

203. *T. tenuis*. Sub-oval, flat, thin, glossy, slightly striate, somewhat pointed at the anterior end: hinge with a lateral laminate tooth in one valve.

*Donov. t. 19. f. 2. Br. Zool. t. 48. f. 29. T. planata.*

Shell half an inch long, 3 quarters broad, semipellucid, brittle, whitish, yellow, or red, with a few concentric striae and lighter bands: *beak* small, nearly central.

204. *T. striata*. Suboval, flat, thin, semipellucid, finely striate, rosy white: hinge with a lateral laminate tooth in both valves.

*Chemn. Conch. 6. t. 12. f. 117. Montague. Brit. Shells, p. 60.*

Shell an inch long, 6 lines broad, rosy-white, within rosy white round the margin, indented at the slope: *beak* small, pointed, nearly central: differs from *T. tenuis* in its regular transverse striae, and its thick lateral teeth.

205. *T. Fabula*. Oval, compressed, a little produced at one end, one valve obliquely striate longitudinally, the other smooth: beak turning a little to one side.

*Donovan. t. 97. Montague p. 61. n. 7.*

Shell 6 lines long, an inch broad, bluish-white or yellow, thin, pellucid, rounded at one end, produced to a point at the other, contracted at the margin near the smaller end: *beak* small, nearly central, pointed, turned a little to one side: hinge with 3 teeth in one valve and 2 in the other.

206. *T. similis*. Oval, compressed, rounded at both ends, both valves obliquely striate longitudinally five-sixths of their surfaces: beak not curved.

*Sowerby Brit. Miscell. ii. tab. 75.*

Shell resembling the last, except in having both valves diagonally striate over nearly the whole surface, in not being produced to a point at the smaller end and not contracted near it, and in having the beak straight.

207. *T. solidula*. Suborbicular, a little convex, produced at one end; hinge with 2 small teeth in each valve.

*Br. Zool. tab. 49. f. 32. Da Costa t. 12. f. 4. Montag. p. 63.*

Shell 3 quarters of an inch long, rather more broad, strong, white or red, with often intermediate shades, often variegated with concentric red yellow or whitish bands: within glabrous, red, white, or yellow: *beak* nearly central.

208. *T. fausta*. Suborbicular, rather compressed, semipellucid, finely striate: hinge with strong lateral teeth, the primary one in each valve cloven.

*Donovan tab. 98. Linn. Trans. viii. t. 1. f. 8.*

Shell 3 inches long, a little more broad, white, with a bend at the posterior margin: *beak* small, nearly central, not turning to one side.

209. *T. crassa*. Suborbicular, flat on the upper-valve, strong, thick, closely striate: hinge with 2 teeth in each valve, one of which is cloven, and 2 lateral teeth in the deeper valve.

*Br. Zool. t. 48. f. 28. Donov. t. 103. T. rigida.*

Shell 2 inches long, an inch and a half broad, yellowish-white with pale pink rays, the lower-valve convex.

210. *T. reticulata*. Suborbicular, subdiaphanous, com-



pressed, finely reticulate: hinge with 2 small central teeth, and broad lateral laminate ones.

*Barbut Shells. t. 3. f. 6. Linn. Trans. viii. t. 1. f. 9.*

Shell an inch and a quarter long, a little more broad, yellowish white, with numerous raised concentric striæ crossed by fainter ones: *beak* small, prominent, nearly central, turning a little one way.

211. *T. Radula*. Suborbicular, a little convex, rough with numerous sharp concentric striae: hinge with 2 teeth in each valve, without lateral ones.

*Montague t. 2. f. 1. 2. Donovan. t. 130. Venus borealis.*

Shell an inch and a half long, nearly as much broad, white, with sometimes rosy bands, with a heart-shaped cavity under the beak, and a flexuous one at the posterior end: *beak* central, turning a little to one side.

212. *T. bimaculata*. Subtriangular, rounded, faintly striate, with a deep red spot each side the beak: hinge with primary and lateral teeth.

*Donovan t. 19. f. 1. Lister. t. 385. f. 232.*

Shell half an inch long, 6 lines broad, whitish, with the red spots deeper on the inside, sometimes marked with a few purple rays: *beak* a little oblique: *teeth* large.

213. *T. lactea*. Orbicular, thin, convex, irregularly striate, white: hinge with 2 teeth in one valve and one in the other, and a deep lateral groove in each valve.

*Montague t. 2. f. 4. Petiv. Gaz. t. 93. f. 18.*

Shell 3 quarters of an inch long, about as much broad, with a few irregular wrinkles: *beak* small, oblique.

214. *T. rotundata*. Orbicular, rather convex, thin, subpellucid, obscurely striate: teeth 2 in each valve, one of them cloven, the other slightly diverging.

*Montague Brit. Shells. p. 71. tab. 2. f. 3.*

Shell about an inch wide, white, rather glossy, sometimes a little narrower at one end: *beak* small, oblique.

215. *T. flexuosa*. Suborbicular, convex, thin, pellucid, finely striate, with a groove across ending in an indenture in the margin: hinge with an obsolete tooth.

*Donovan Brit. Shells. t. 42. f. 2. Venus sinuosa.*

Shell not half an inch across, white, with a groove from behind the beak running parallel with the cartilage slope and forming a flexure in the margin: *beak* much produced, oblique: hinge with a groove along the margin.

216. *T. carnaria*. Suborbicular, a little produced at one end, pale rosy, striate in a concentric oblique and transverse direction: hinge with 2 teeth in one valve, one of which is cloven, and one in the other.

*Donovan t. 47. Chemn Conch. 6. t. 13 f. 126.*

Shell above half an inch long, a little more broad, often marked with deeper concentric belts, within rosy, finely striate in 3 directions: *beak* nearly central, rather oblique: hinge with remote lateral laminate teeth.

217. *T. inequivalvis*. Oblong, much produced towards the beak, one valve nearly flat, the other convex: hinge with 2 teeth, without lateral ones.

*Donovan t. 41. f. 1. Chemn. Conch. 6. t. 11. f. 206. a--d*

Shell half an inch long, an inch broad, white, sub-pellucid, arched along the cartilage slope, rounded at the larger end.

218. *T. maculata*. Suboval, thickish, decussately striate, with irregular spots.

*Adams Linn. Trans. iii. p. 252*

Shell with the spots dissimilar in different specimens, but perfectly alike in both valves.

### 39. CARDIUM. Cockle.

219. *C. aculeatum*. Convex, slightly truncate and produced on one side, with about 21 ribs grooved down the middle and beset towards the margin with strong spines.

*Br. Zool. t. 50. f. 37. Donovan t. 6. Barbut t. 3. f. 10.*

Shell about 4 inches wide, yellowish-brown with rufous bands or marks, rounded and tubercled on the anterior side, a little truncate on the other: spines increasing in size towards the larger end,

220. *C. spinosum*. Convex, tender, abruptly truncate and produced at one end, with 20 prominent ribs armed with long flat sharp spines.

*Sowerby Brit. Miscell. 1. tab. 32.*

Shell resembling *C. aculeatum*, but is more tender and abruptly truncate, pale rufous: spines prickly, somewhat flattened longitudinally with the shell, the larger-ones furrowed, those on the narrow side curved towards the hinge, those of the broader side curved from the hinge.

221. *C. echinatum*. Convex, rounded, with about 18 carinate ribs beset with numerous close-set convex spines.

*Donovan t. 107. f. 1. Da Costa t. 14. f. 2.*

Shell 2 inches and a half wide, differing from *C. aculeatum* in being quite rounded and in not having the ribs grooved, and from *C. spinosum* in not being truncate and in having the spines shorter and more obtuse.

222. *C. ciliare*. Orbicular, thin, with about 18 sharp 3-sided ribs beset with short flat pointed spines.

*Donovan t. 32. f. 2. Br. Zool. iv. t. 50. f. 39.*

Shell about 3 quarters of an inch long, brittle, whitish, with flat grooves.

223. *C. tuberculatum*. Convex, strong, thick, with about 20 obtuse tubercled transversely striate ribs.

*Donovan t. 107. f. 2. Lister. Conch. t. 329.*

Shell convex, ponderous, generally brown with darker bands; the ribs sprinkled with a few knobs.

224. *C. nodosum*. Flat, suborbicular, with 24 ribs covered with close-set obtuse tubercles.

*Montague Brit. Shells. p. 81. n. 6.*

Shell 3 quarters of an inch wide, reddish-white, strongly toothed on the margin, glossy-white within.

225. *C. levigatum*. Somewhat oval, strong, with obsolete longitudinal striæ, and a few transverse wrinkles concealed by a thin cuticle.

*Br. Zool. t. 51. f. 40. Donov. t. 54. Da Cost. t. 3. f. 6.*

Shell 2 inches and a half long, 2 inches broad, flesh-colour be-

neath the skin, generally deep red or variously marked, denticulate on the margin within.

226. *C. edule*. Antiquated, a little produced at one end, with obsolete recurved scales, and about 26 depressed ribs.

*Br. Zool. t. 50. f. 41. Donovan. t. 124. Da Cost. t. 11. f. 1.*

Shell hardly 2 inches wide, yellowish-white or bluish, rarely equilateral, a little rough near the circumference.

227. *C. rusticum*. Antiquated, a little produced at one end, with about 20 remote ribs, the interstices rugged.

*Donovan iv. t. 124. f. 2. Barbut. t. 3. f. 12.*

Shell resembling *C. edule*, except that it is larger, has an evident ridge on the fore-margin when closed, a narrow depression behind the beaks, the ribs fewer and more raised, of a ferruginous or livid colour, and bluish within.

228. *C. elongatum*. Compressed, suboval, a little angular, somewhat elongated and angular on one side, with 21 faintly wrinkled and rounded ribs.

*Montague Brit. Shells. p. 82. n. 7.*

Shell a quarter of an inch wide, yellowish-white or light rufous: beak not central,

229. *C. exiguum*. Very convex, somewhat triangular, with about 20 tubercled or wrinkled ribs, strongly striate transversely in the interstices.

*Donovan. t. 32. f. 3. Walk. minute Shells f. 83.*

Shell about half an inch wide, white or pale rufous, sloped on the anterior side, and produced at one end.

230. *C. medium*. Somewhat triangular, crenate at the sides, with about 26 smooth ribs.

*Donovan t. 32. f. 1. Lister t. 316. f. 153.*

Shell hardly an inch long, white variegated with chestnut, a little truncate on one side and produced at one end: teeth one in each valve, with strong lateral-ones.

231. *C. rubrum*. Convex, smooth, glossy, pellucid, red: hinge not quite central.

*Montague p. 83. Walk. min. shells. 862.*

Shell hardly 2 lines long, rounded at both ends, with the margin plain: beak prominent: teeth nearly obsolete, the lateral-ones very visible.

232. *C. discors*. Very convex, suborbicular, glossy, finely striate obliquely: hinge with 2 teeth in one valve.

*Montague Brit. Shells. p. 84. n. 11.*

Shell the size of a pea, white with sometimes a purple top, carnation within; the striae reflected into an acute angle on the fore-part; margin plain: beak central, leaning a little to one side: lateral teeth remote, laminate.

233. *C. muricatum*. Heart-shaped, opaque, white, muricate on the margin.

*Walk. min Shell f. 84. Adams Microsc. t. 14. f. 44.*

Shell extremely minute, muricate in front.

234. *C. arcuatum*. Orbicular, thin, brittle, semi-pellucid, with fine regular transverse curved striae.

*Montague Brit. Shells. p. 85. tab. 3. f. 2.*

Shell not half an inch wide, white, with a few irregular concentric

grooves; the margin slightly crenate: *beak* central, pointed, turning to one side.

235. *C. corneum*. Suborbicular, convex, thin, pellucid, with fine concentric striae, one of which is very distinct.

2. Twice as large, without the prominent groove.

*Br. Zool. t. 49. f. 36. Donovan. t. 96. Tellina.*

*Shell* about 4 lines long and somewhat broader, white or bluish, often covered with a horn-colour skin, within bluish-white, with transverse black curves, one of which is more distinct; *beak* central, obtuse: *primary-teeth* hardly any; lateral-ones remote, laminate.

236. *C. amnicum*. Oblique, suboval, convex, somewhat pellucid, transversely grooved.

*Don. t. 64. f. 2. Linn. Trans. iii. t. 13. f. 37. 38. Tellina.*

*Shell* smaller than the last, horn-colour, with the *beak* placed near one side: *teeth* one in one valve with 2 lateral ones, in the other 2, oblique, with a single lateral-one.

237. *C. lacustre*. Subrhombic, thin, pellucid, smooth, flattish, with an acute projecting *beak*.

*Chemn. Conch. vi. t. 13. f. 135. Tellina.*

*Shell* 3 lines long, 4 broad, greyish-brown with a white margin, rather compressed: *beak* central, very prominent: *teeth* one in each valve, one of which is cloven, with a lateral tooth each side, and 2 minute laminae in one valve.

#### 40. MACTRA.

238. *M. solida*. Strong, opaque, slightly triangular, with a few concentric ridges and zones.

*Br. Zool. t. 51. f. 43. A. Donovan. t. 61. Da Cost. t. 15. f. 1.*

*Shell* an inch and a half long, an inch and 3 quarters broad, yellowish-white with often yellow or bluish bands, glossy-white within, equal at the sides: *beak* central.

239. *M. subtruncata*. Strong, subtriangular, yellowish-white, transversely striate, slightly truncate on both sides.

*Donov. t. 126. Br. Zool. t. 52. f. 42. M. Stultorum.*

*Shell* 3 quarters of an inch long, an inch broad, a little produced on one side, with sometimes a few ridges, yellowish-white within, the sides near the *beak* much turned in: *beak* large, prominent.

240. *M. Stultorum*. Thin, semipellucid, faintly striate, slightly triangular, pale rufous with lighter radiations, within pale purple.

*Donovan t. 106. Br. Zool. t. 49. f. 30. Tellina.*

*Shell* an inch and a half long, an inch and 3 quarters broad, nearly equal at the sides, often covered with a thin skin, irregularly radiate with broad and narrow whitish lines: *beak* central, prominent, often purplish.

241. *M. radiata*. Thin, brittle, somewhat triangular, produced at one end, whitish with regular pale testaceous rays.

*Donovan Brit. Shells. v. tab. 161.*

*Shell* 2 inches and a half long, nearly 3 wide, thin, brittle, dirty white with a dull rufous tinge, and radiate with numerous equidistant narrow testaceous rays, finely striate transversely: *beak* prominent, rather oblique.

242. *M. dealbata*. Oval, thin, brittle, pellucid, white,



finely striate, with a few coarser wrinkles, gaping a little at the smaller end.

*Montague Brit. Shells. p. 95. tab. 5. f. 1.*

Shell an inch long, an inch and a half broad, a little produced at one end, with a sharp plain margin: *beak* rather oblique: *middle-tooth* in one valve broad, forked, angular, close to the beak.

243. *M. compressa*. Suboval, subtriangular, thin, flat, semipellucid, irregularly wrinkled: in one valve a single tooth locking into a cloven one in the other.

*Donovan t. 64, f. 1. Tellina plana. Da Cost. t. 13. f. 1.*

Shell an inch and a half long, 2 broad, yellowish-white, or pale ferruginous, often with dark bands: *beak* small, central: *hinge* without lateral teeth: *cavity* at the cartilage large, triangular.

244. *M. Boysii*. Oval, flat, thin, pellucid, glossy-white, nearly smooth: *beak* oblique, a little turned.

*Montague. t. 3. f. 7. Linn. Trans. iv. t. 16. f. 9-12.*

Shell half an inch long, 3 quarters broad, with sometimes a few obscure striæ: *teeth* one in each valve, with a broad lateral tooth in one valve only: *cartilage* thin, long.

245. *M. triangularis*. Subtriangular, opaque, white, smooth: *hinge* with a large cloven tooth in one valve, in the other two small ones with a triangular cavity between them.

*Montague Brit. Shells. p. 99. tab. 3. f. 5.*

Shell 3 lines broad, 2 long, a little produced on one side, strongly crenate on the margin within.

246. *M. lutraria*. Oblong-oval, nearly smooth: *hinge* without lateral teeth, in one valve a small and large triangular cavity, in the other a cavity and raised triangular tooth.

*Br. Zool. t. 52. f. 44. Donovan t. 58. Linn. Tr. vi. t. 16. f. 3. 4.*

Shell above 2 inches long, 4 broad, yellowish-white with pale bands, sometimes with a few striæ, gaping a little at both ends, glossy-white within: *beak* small, nearer the larger end.

247. *M. glauca*. Oval, finely striate, wrinkled at the anterior end, dirty-white, with broad and narrow brownish or glaucous rays.

*Donovan Brit. Shells t. 125. Chemn. vi. t. 23. f. 232, 233.*

Shell 2 inches and a half long, 3 and a half broad: *beaks* turned backward, with a narrow gape between them.

248. *M. tenuis*. Subtriangular, equilateral, thin, semipellucid, white, wrinkled: *hinge* with a forked tooth in one valve and a simple one in the other, with lateral teeth in each.

*Montague. Brit. Shells. app. p. 572.*

Shell a quarter of an inch long, rather more broad: *beak* small, central, produced, straight.

249. *M. hians*. Oblong, strong, rugged, gaping at the smaller end, arched under the beak: *beak* near the larger end.

*Donovan t. 140. Linn. trans. vi. t. 16. f. 5. 6.*

Shell 2 inches and a quarter long, 5 broad, opaque, dark-brown or grey with often a rufous tinge, very rugged near the open end: *hinge* with a flattish tooth, grooved on the fore-part, locking between two in the other valve, one of which is cloven.

## 41. DONAX.

250. *D. Trunculus*. Oblong, glossy, finely striate longitudinally, with transverse purple bands, within purple with crenate margins.

*Br. Zool. t. 55. f. 45. Donovan. t. 29. f. 1.*

*Shell* 6 lines long, an inch and a quarter broad, yellowish with brown and purple bands: *beak* small, near the abrupt end,

251. *D. denticulata*. Somewhat wedge-form, strong, thick, much truncate at one end, longitudinally striate with the interstices punctured, denticulate on the margin.

*Br. Zool. t. 55. f. 46. Donovan tab. 24. D. crenulata.*

*Shell* 7 lines long, an inch broad, brown yellowish or purple, variously banded and rayed, much sloped at the larger end, purple within: *beak* nearer the larger end: *hinge* with a lateral tooth each side the middle-ones.

252. *D. complanata*. Oblong, smooth, glossy, yellowish with white streaks or spots, and a broad white ray from the beak to the margin.

*Montague t. 5. f. 4. Lister t. 384. f. 227.*

*Shell* 6 lines long, an inch and a quarter broad, yellowish or purplish, often covered with a polished skin, rarely with a few obsolete transverse striæ, within purple with the margin smooth: *beak* near one end.

253. *D. plebeia*. Oblong, suboval, thick, smooth, glossy, yellowish horn-colour with 2 brown rays from the beak: teeth both strong.

*Montague. Brit. Shells. p. 107. t. 5. f. 2.*

*Shell* about half an inch long, 3 quarters broad, strong, with a few distant concentric striæ, pale and glossy within, the margin smooth: *beak* nearer one end: *hinge* with a lateral tooth.

254. *D. castanea*. Strong, thick, with a few irregular transverse ridges, chesnut with a darker curved ray from the beak: one of the teeth small.

*Montague Brit. Shells. app. p. 573. t. 17. f. 2.*

*Shell* a quarter of an inch long, 3 eighths broad, chesnut and glossy within with the margin smooth: *beak* obtuse, rather leaning to the longer side: *hinge* with a large and a small tooth in each valve, without lateral-ones.

255. *D. Irus*. Sub-oval, whitish, with transverse waved membranaceous reflected ridges finely striate longitudinally between the interstices.

*Donovan t. 29. f. 2. Da Costa t. 15. f. 6.*

*Shell* about the size of a small kidney-bean, sometimes nearly circular or oblong, opaque, rugged, within white or flesh-colour with the margin smooth: *beak* small, oblique: *teeth* cloven, one excepted.

## 42. VENUS.

256. *V. fasciata*. Somewhat heart-shaped, with large broad depressed ridges of equal thickness at both ends: beaks much curved.

*Donovan t. 170. Da Costa tab 13. f. 3.*

*Shell* 10 lines long, an inch broad, variously rayed and banded with brown red or yellow, resembles *V. Paphia*, but is more rounded, and the ridges are more flattened and not growing obso-

- lets towards the extremities: *beak* central, with a heart-shaped depression beneath it.
257. *V. verrucosa*. Suborbicular, convex, with strong raised ridges forming membranous protuberances towards the outer margin which is crenulate.  
*Donov. t. 44. Br. Zool. t. 54. f. 48. Da Cost. t. 12. f. 1.*  
*Shell* about 2 inches long and as much broad, dirty-white with often a rufous tinge, within white, smooth, crenulate at the margin, rugged with wrinkled knobs at the sides, in the young shell sometimes faintly striate longitudinally; *Donov. t. 115: beak* central, curved, beneath which is a heart-shaped depression.
258. *V. Gallina*. Somewhat heart-shaped, with obtuse recurved concentric striae and 3 or 4 rufous-brown stripes from the beak: hind-tooth minute.  
*Br. Zool. t. 56. f. 50. Donov. t. 68. Linn. Tr. vi. t. 17. f. 7. 8.*  
*Shell* about an inch long, one and a quarter broad, sometimes whitish brown and plain, often with rufous spots, but most commonly with 3 or 4 broad stripes which are usually marked with zigzag darker lines, within white with a crenulate margin: *beak* curved, with a heart-shaped depression under it.
259. *V. islandica*. Suborbicular, convex, strong, irregularly striate, covered with a brown skin, within pure white: beak without the depression under it.  
*Donov. t. 77. Br. Zool. t. 53. f. 47. Da Costa t. 14. f. 5.*  
*Shell* 3 inches 3 quarters long, 4 and a quarter broad, whitish covered with a glossy yellow-brown skin, within white with a plain margin: *beak* curved to one side: *teeth* 3, the middle-one double, the lateral-one linear oblique, crenulate.
260. *V. Chione*. Somewhat hearted, strong, faintly wrinkled, covered with a smooth glossy chesnut skin, with faint darker rays.  
*Donovan t. 17. Da Costa t. 14. f. 7.*  
*Shell* 3 inches long, near 4 broad, within glossy-white, with a plain margin: *beak* oblique, turned sideways, with a heart-shaped depression beneath it: *teeth* 4, the 2 middle-ones approximate and lanceolate, the 2 lateral-ones divaricate.
261. *V. exoleta*. Orbicular, strong, with regular close-set striae, generally pale with obsolete broad rays.  
*Br. Zool. t. 54. f. 49. t. 66. f. 49. Donovan t. 42. f. 1.*  
*Shell* 2 inches wide, sometimes white and plain, oftener with broad or narrower pale rays, within smooth white with a plain margin: *beak* curved, with a short heart-shaped depression under it.
262. *V. undata*. Orbicular, thin, convex, with fine irregular striae; the margin undulate.  
*Br. Zool. t. 55. f. 51. Donov. t. 121. Linn. Tr. vi. t. 17. f. 17. 18.*  
*Shell* an inch and quarter-broad, a little more in length, white with a yellowish tinge, within glossy with a plain margin: *beak* a little curved, without depression under it.
263. *V. Casina*. Suborbicular, with transverse acute recurved ridges, crenulate on the hind-margin, slightly channelled behind the depression.  
*Linn. Trans. viii. t. 2. f. 1. Br. Zool. t. 54. f. 48. A.*  
*Shell* an inch and a half wide, resembling *V. verrucosa*, but the ridges are more acute, and do not form protuberant knobs at the outer margin, white with angular brownish lines: *plaits* broader or narrower, nearly uniting: *hinge* thick.
264. *V. lactea*. Orbicular, thick, flattish, with regular

thick obtuse raised striae, slightly truncate anteriorly.

*Donovan's Brit. Shells* v. tab. 149.

Shell about an inch and a half wide, white, with very thick obtuse ridges, a little truncate on one side: *beak* curved.

265. *V. tigrina*. Orbicular, thin, flat, white, striate longitudinally and crossed with numerous fine transverse ones.

*Montague p.* 119. *t.* 4. *f.* 1. *Lister t.* 337. *f.* 174.

Shell 3 quarters of an inch long, near an inch broad, with sometimes a purple tinge on the edges, reticulate, glossy-white within with a plain margin: *beak* pointed, a little curved.

266. *V. sinuosa*. Thin, convex, with a very deep sinuosity on the margin in front, the edges of which are obtuse.

*Pennant Brit. Zool.* iv. tab. 55. *f.* 51. A.

Shell 3 quarters of an inch broad, about half an inch long.

267. *V. ovata*. Suboval, somewhat compressed, opaque, brown, strongly striate longitudinally with finer transverse ones,

*Br. Zool. t.* 56. *f.* 56. *Walk, min. sh. f.* 12. *Cardium.*

Shell 4 lines long, half an inch broad, reticulate, white or flesh-colour within with the margin slightly crenate: *beak* nearly central, a little curved.

268. *V. minima*. Suborbicular, glossy, with broad concentric striae, flesh-colour with a red streak each side in the middle near the margin.

*Montague Brit. Shells* p. 121. tab. 3. *f.* 3.

Shell a quarter of an inch long, rather more broad, rather compressed, generally with 2 shortened white lines like the letter W, the point of which is at the beak, and at the ends of which is a red streak pointing towards the margin, within glossy-white with the margin plain: *beak* prominent, a little curved.

269. *V. subcordata*. Somewhat heart-shaped, strong, white, with strong longitudinal ribs crossed by remote transverse ones, much sloping on the anterior side from the beak.

*Montague Brit. Shells* p. 121. tab. 3. *f.* 1.

Shell a quarter of an inch wide, reticulate, with the interstices a long square, within glossy-white slightly crenate on the margin: *beak* nearer one end, much curved.

270. *V. granulata*. Suborbicular, thick, whitish with chocolate and livid marks, strongly ribbed longitudinally and striate transversely, crenate on the margin.

*Donovan. t.* 83. *Chem. Conch.* 6. *t.* 30. *f.* 313.

Shell 8 lines long, an inch broad, strongly reticulate, variegated with purple and livid spots and lines, dark purple within: *beak* curved, with a heart-shaped depression beneath it.

271. *V. deflorata*. Suboval, thin, semipellucid, with undulate longitudinal striae crossed by a few wrinkles, whitish faintly radiate with purple.

*Br. Zool. t.* 57. *f.* 54. *Chem. Conch.* 6. *t.* 9. *f.* 79.

Shell an inch long, one and 3 quarters broad, white with a yellowish or purple tinge, purplish within: *beak* nearly central and straight.



272. *V. decussata*. Somewhat oval, strong, reticulate, somewhat angular and produced at the anterior side, brown, within white with purple spots near the hinge.

Donovan t. 67. Br. Zool. t. 57. f. 53. *V. litterata*.

Shell 2 inches long, 3 broad, often, marked with dark zigzag characters or lines, strongly reticulate at the ends: *beak* oblique, beneath which is a lanceolate depression: *hinge* with 3 teeth, 2 of them cloven.

273. *V. Pullastra*. Suboval, finely and regularly decussate, somewhat truncate at the anterior end, brown with zigzag lines or rays.

Linn. Transact. vi. t. 17, f. 13. 14.

Shell very much resembling the last, but smaller, and the striae are finer and more regular, the cicatrix running down more than half the breadth of the shell, and is constantly marked with grey brown or purple zigzag lines: *teeth* 3, approximate, pectinate.

274. *V. perforans*. Subrhombic, transversely striate, wrinkled on the anterior side, light-brown: 2 of the teeth long, slender, recurved, the middle-one a little cloven.

Montague Brit. Shells p. 127. tab. 3. f. 6.

Shell about 4 lines long, and 6 broad, with rarely fine longitudinal striae; white within with a plain margin, and generally tinged with purple at the truncate end: *beak* small, a little oblique.

275. *V. virginea*. Suboval, strong, transversely striate with a few deeper furrows, rounded at both ends: middle tooth cloven.

Br. Zool. n. 55. t. 55. fig. without number.

Shell hardly an inch broad, more than an inch long, rufous-brown with ferruginous streaks or spots, or with a few rays or zigzag lines, rarely bluish-colour with a few longitudinal white streaks; within white with a plain margin, often tinged with bluish-colour: *beak* nearer one end, with a lanceolate depression near it.

276. *V. aurea*. Somewhat heart-shaped, strong, with transverse striae crossed by faint longitudinal ones, rounded at both ends: middle tooth cloven.

Br. Zool. t. 57. f. 34. Lister t. 204. f. 249.

Shell an inch long, 4 lines broader, white with brown or blueish-black zigzag lines, or mottled with grey, sometimes brown with often a yellow tinge, within yellowish-white with a plain margin; front-margin much rounded: *beak* near one end, curved, with a lanceolate depression beneath it.

277. *V. sulcata*. Suborbicular, subangular, strong, flatish, with concentric ridges becoming obsolete at the sides, white or covered with a brown skin.

Montague Brit. Shells p. 131. n. 20.

Shell near an inch long and broad, with the grooves broader than the ridges, white within with a crenate margin: *beak* large prominent, a little curved, beneath which is a lanceolate depression: *teeth* large, the middle one much larger, with a deep cavity on each side receiving the 2 teeth of the other valve.

278. *V. scotica*. Somewhat hearted, a little compressed, with regular parallel grooves, and plain margin.

Linn. Trans. viii. p. 81. tab. 2. fig. 3.

Shell half an inch long, and about 3 quarters broad, of a more

triangular shape than *V. verrucosa* and not slightly truncate on the anterior part, whitish, with 15 or 16 obtuse very regular but not membranaceous wrinkles.

279. *V. triangularis*. Somewhat triangular, equally sloping each side under the beak, yellowish-white, with a few antiquated ridges: in one valve 2 teeth, and a lateral semilunar lamina; in the other 3, 2 of them diverging.

Montague Brit. Shell. app. p. 577. tab. 17. f. 1.

Shell half an inch long, nearly as broad; smooth within: beak central, very prominent, a little oblique, with a lanceolate depression under it: one valve with 2 strong teeth, one cloven, the other triangular with a semilunar lamina near it; the other valve with 3 teeth.

280. *V. spinifera*. Suboval, subtriangular, with fine equidistant raised ridges becoming confluent in pairs at the anterior side and forming obtuse reflected spines.

Montague Brit. Shells. app. p. 577.

Shell half an inch long, rather more broad, yellowish-white, with numerous parallel somewhat reflected ridges ending on the margin of the cartilage slope in short spines, within white smooth: beak nearly central, a little turned, with a lanceolate depression beneath it: hinge with a single tooth and a small cavity and a remote lateral lamina in one valve; in the other valve 2 teeth.

#### 43. CHAMA.

281. *Ch. Cor.* Subglobular, heart-shaped, slightly striate, gaping at the anterior slope: beak much incurved.

Donovan tab. 134. Lister conch. t. 275. f. 111.

Shell near 3 inches wide, strong, thick, covered with a yellow-brown skin under which it is varied with brown and white, slightly wrinkled transversely, with the margin entire: beak reddish, large, prominent, twisted inwards: hinge strong, with flattish teeth.

#### 44. ARCA. Ark-shell.

282. *A. pilosa*. Suborbicular, exactly equilateral, faintly striate longitudinally with transverse wrinkles, covered with a villous skin under which it is marked with zigzag brown lines.

Br. Zool. t. 58. f. 58. Donov. t. 37. *A. Glycymeris*.

Shell 2 inches and a half wide, covered with a dark brown hairy skin, beneath which are chestnut or orange angular stripes; within white with a crenate margin: beak prominent, central, straight.

283. *A. Glycymeris*. Suborbicular, a little irregular, faintly striate, covered with a villous skin, under which it is marked with yellowish spots or bands.

Linn. Trans. viii. p. 95. tab. 3. f. 3.

Shell resembling the last, but is more gibbous, and not quite equilateral, within white with a crenulate margin: teeth about 10, transverse.

284. *A. luctea*. Rhombic, yellowish-white, covered with a brown hairy skin, closely and regularly striate longitudinally with a few concentric ridges.

Donovan t. 135. Br. Zool. t. 58. f. 59.

Shell an inch and a half long, 3 quarters of an inch broad, sometimes reticulate, sometimes rounded at both ends, sometimes a

little truncate, within white with a plain margin: *beak* nearly central, incurved.

285. *A. Noë*. Rhombic, reticulate, notched at top: *beak* near one end, incurved, very remote, separated by a deep groove.

*Donov. t. 153. Montague tab 4. f. 3.*

*Shell* about half an inch broad, rufous brown, much gaping at the *beaks* and margin, a little truncate at both ends, within whitish, crenate on the outer margin.

286. *A. minuta*. Oblong, produced at one end into an angular truncate indented *beak*, rounded at the other.

*Donov. t. 78. A. caudata. Walk. min. sh. f. 81. A. Modiolus.*

*Shell* 4 lines long, hardly half an inch broad, white or yellowish, finely striate transversely, with 3 4 strong excentric ridges, closed: *beak* small, turning a little towards the angular side.

287. *A. Nucleus*. Subtriangular, produced at one end, concentrically wrinkled and crossed with minute obsolete striae, white, within silvery.

*Donovan t. 63. Linn. Trans. 6. t. 18. f. 3-6.*

*Shell* 4 lines long, a little more broad, covered with a glossy olive skin: *beak* oblique, under which is a heart-shaped depression: *hinge* angular, with regular pectinate teeth each side: *margin* crenulate within.

#### 45. PECTEN. Scallop.

288. *P. maximus*. Ears of equal size: shell with about 14 rounded ribs which are longitudinally grooved.

*Br. Zool. t. 59. f. 61. Donov. t. 49. Ca Cost. t. 9. f. 3.*

*Shell* 5 inches long, 6 broad; the upper-valve flat, transversely striate between the ribs, rufous; lower-valve very concave, yellowish-white; within whitish, rufous round the margin: *ears* large, rectangular, with decussate striae.

289. *P. Jacobæus*. Ears equal: shell with about 17 angular ribs which are longitudinally grooved.

*Br. Zool. t. 60. f. 62. Donov. tab. 137.*

*Shell* 4 inches long, 5 broad; the upper valve a little convex, rufous; the lower white; transversely striate, within white, a little tinged at the margin: *ears* rectangular, with decussate striae.

290. *P. opercularis*. Ears nearly equal: shell with about 20 rounded ribs finely striate longitudinally and transversely.

*Br. Zool. t. 60. f. 63. Donov. t. 12. P. subrufus.*

*Shell* nearly orbicular, about 2 inches and a half wide, generally beautifully variegated white red purple or brown, the upper-valve rather convex: *ears* rather unequal, with decussate striae, ciliate.

291. *P. lineatus*. Ears a little unequal: shell with about 18 narrow rough ribs, white with a purple line down each of the ribs on the upper-valve.

*Donov. t. 116. Da Costa tab. 10. f. 8.*

*Shell* about an inch and a half long, hardly as much broad, white with a purple line down each of the ribs of the upper-valve, lower-valve pure white, transversely striate: *ears* not quite equal, striate.

292. *P. Pusio*. Ears nearly equal: shell equivalve, mostly distorted, with about 40 linear ribs.

*Br. Zool. tab. 61. f. 65. Donovan tab. 34.*

Shell about 2 inches long, one and a half broad, generally much distorted and irregular on the surface, with numerous unequal fine ribs, rufous, whitish, or variegated; ears sometimes large, sometimes hardly visible.

293. *P. glaber*. Ears equal: shell very thin, with 15 faint rays, within marked with rays divided by a single groove.

*Pennant Br. Zool.* iv. p. 102. n. 68.

294. *P. varius*. Ears very unequal: shell with about 12 ribs beset with transverse prickly scales.

*Br. Zool.* t. 61. f. 64. *Donov. tab.* 1. f. 1.

Shell about 2 inches wide, 2 and a quarter long, variously coloured and marked, with rough spinous protuberances down the rays especially towards the margin: ears very unequal, the larger-one wrinkled and armed beneath with 5-7 spines, the smaller with a double row of spines.

295. *P. obsoleteus*. Ears unequal: shell dark purple, with numerous fine longitudinal striae 8 or 10 of which are more prominent.

*Br. Zool.* t. 61. f. 66. *Donovan. tab.* 1. f. 2.

Shell hardly an inch long, dark purple with 8 obsolete darker rays, smooth and brownish within, equivalve: ears unequal, the larger-one wrinkled and striate.

296. *P. laevis*. Ears unequal: shell flat thin, pellucid, smooth except a few faint concentric ridges.

*Montague Brit. Shells.* p. 150. *tab.* 4. f. 4.

Shell nearly orbicular, about 6 lines long, yellowish-white, purplish-brown, or chesnut, often variegated, within white with the margin crenulate, sometimes striate near the margin: ears strongly striate longitudinally and very finely transversely.

#### 46. OSTREA. *Oyster*.

297. *O. edulis*. Suborbicular, rugged, with undulate imbricate scales; one valve flat and entire.

*Da Costa tab.* 11. f. 6. *Linn. Trans.* vi. t. 18. f. 9. 10.

Shell varying much in size and bulk, generally brown, with unequal valves, the upper-one flat, the lower very convex and rugged transversely striate and often longitudinally ribbed, within pearly white: beak rather oblique, with a row of small knobs running down each side.

298. *O. saxatilis*. Suborbicular, very thin, pellucid, a little scaly: the larger-valve with strong longitudinal ribs.

Found adhering to rocks and stones near the low water mark at the Mumbles, and differs from the last in being always very thin and transparent, not so rugged, and in the lower-valve being furnished with strong longitudinal ribs which often end in hollow scales: Shell 2 or 3 inches long, variously shaped, but generally suborbicular, oblong, or subtriangular, mostly with a fine purple tinge, within glossy white.

#### 47. ANOMIA.

299. *A. Ehippium*. Suborbicular, pellucid, with wrinkled undulate plaits, irregularly sinuate on the margin.

*Br. Zool.* t. 62. *Donov. t.* 26. *Da Cost. t.* 11. f. 3.

Shell 2 or 3 inches wide, produced on one side, perlaceous with various tints of green purple violet or yellow, the perforated valve transversely striate.



300. *A. Squamula*. Suborbicular, thin, membranaceous, like the scale of a fish, entire, the flat valve transversely wrinkled.

*Walker min. Shells. f. 80. Adams microsc. t. 14. f. 42.*

Shell about half an inch wide, whitish, within silvery or tinged with green: *beak* prominent, pointed.

301. *A. aculeata*. Suborbicular, thin, longitudinally striate, rough with small concave obtuse spines.

*Montague Brit. Shells. p. 157. tab. 4. f. 5.*

Shell about 4 lines wide, dirty-white; with interrupted longitudinal striæ: *beak* smooth, recurved.

302. *A. undulata*. Suborbicular, pellucid, with fine irregular undulate longitudinal smooth striæ, crossing transverse curved ones.

*Donovan t. 45. Da Costa t. 11. f. 4. Ostrea.*

Shell an inch or rather more wide, whitish, within perlaceous or greenish, mostly undulate on the margin, sometimes finely striate transversely: *beak* small, pointed: *aperture* large, oval,

303. *A. cymbiformis*. Oblong, coarse, slightly striate, with the *beak* incurved, perforated on the flatter valve.

*Linn. Trans. viii. p. 104. tab. 3. f. 6.*

Shell 5 eighths of an inch long, 3 eighths broad, whitish, very tender.

#### 48. MYTILUS. *Mussell*.

304. *M. edulis*. Oblong-oval, nearly smooth, pointed and slightly carinate at the *beak*, truncate and a little curved on one side.

*Br. Zool. t. 63. f. 73. Donovan t. 128. Da Costa t. 15. f. 5.*

Shell about 3 inches long, half a one broad, blackish blue covered with a brown or yellowish skin, sometimes radiate with blue, rounded at the bottom, within white in the middle, blue about the margin.

305. *M. incurvatus*. Oblong-oval, nearly smooth, much curved on one side under the hinge, beneath broad and produced on the same side.

*Br. Zool. t. 64. f. 74. Lister Conch. t. 357. f. 195. 196.*

Shell resembling the last, except that it is less, the *beak* is more truncate; under which on one side it is very crooked and then greatly dilated, covered with a thick rough skin, within violet.

306. *M. pellucidus*. Oval, smooth, open, pellucid, whitish or blackish radiate with deep blue or purple.

*Br. Zool. t. 63. f. 75. Donovan tab. 81.*

Shell 2 inches long, one wide, a little gibbous on one side, covered with a yellow skin, within blueish-white radiate with blue.

307. *M. barbatus*. Oval-oblong, roughish, thin, obtuse at the *beak*, ferruginous-yellow, obliquely clothed with a thick beard on the lower-part.

*Br. Zool. t. 64. f. 76. A. Donovan t. 70.*

Shell about 2 inches long, one wide, short, ventricose, the posterior side rising a little above the *beak*, within white, clothed in an oblique manner with a thick beard on the lower half: *beak* without crenulations within. Probably the young shell of *M. Modiolus*.

308. *M. unguatus*. Oblong-oval, smooth, incurved and much pointed at the beak: hinge terminal, 2 toothed.

*Donovan t. 123. f. 2. Chem. Conch. 8. t. 85. f. 756.*

Shell about 4 inches long, and 2 broad, bluish-black with a mixture of green, much pointed and incurved at the beak, rounded below: hinge with 2-6 teeth besides numerous crenatures on the groove.

309. *M. Modiolus*. Oblong, wrinkled, very obtuse at the beak, with a gibbosity each side below it.

*Br. Zool. t. 66 f. 77. Donovan. t. 23. Da. Cost. t. 15. f. 5.*

Shell 4 or 5 inches long, 2 or 3 broad; covered with a purplish-black skin, perlaceous within, a little angular on one side, much rounded at the beaks which are rather lateral.

310. *M. umbilicatus*. Oblong, contracted into a deep rugged cavity opposite the hinge, forming a deep hollow when the valves are closed.

*Br. Zool. tab. 65. f. 76. Donovan tab. 40.*

Shell about 2 inches long, thick, rounded at the beak, blackish, contracted on one side into a deep rugged hollow under the beak.

311. *M. rugosus*. Rhombic-oval, rugged, brittle, anti-quated, obtuse at both ends.

*Br. Zool. tab. 63. f. 72. Donovan tab. 141.*

Shell about an inch and a quarter broad, half as much long, dirty yellow generally covered with a yellowish skin, often gaping and truncate at one end: beak small, near the thicker and rounded end.

312. *M. praeisus*. Oblong, wrinkled, one valve larger, abruptly truncate at the end near the beak.

*Montague Brit. Shells, p. 165. tab. 4. f. 2.*

Shell resembling the last, except that it is square at the end near the hinge, and one valve is rather larger and receives the other: beak large, prominent; hinge rugged, inflected, with a hollow under the margin.

313. *M. Crista Galli*. Affixed, spinous, compressed, undulately plaited on the margin; both lips rough.

*Barbut tab. 11. f. 1. 2. Montague p. 166.*

Shell 2 inches and a half wide, varying in shape, ferruginous or dull purple, deeply plaited on the margin, affixed by the opposite end, striate with raised dots, glabrous and horn-colour within, marked with a series of raised dots near the margin, armed externally with compressed spines which are conave within: hinge quite simple, linear, toothless.

314. *M. discors*. Oblong-oval, very convex, produced and narrower at the anterior end, striate longitudinally on both sides and transversely in the middle.

*Donovan tab. 25. Linn. Trans. viii. p. 111. t. 3. f. 8.*

Shell an inch and a half wide, 4 lines long, brown, semitransparent, strongly striate longitudinally at the sides and very faintly transversely in the middle, within white or pale pink; margin crenulate at the larger end: beak oblique, near the larger end.

315. *M. discrepans*. Sub-oval, compressed, rounded and broader at the anterior end, striate longitudinally on both sides and transversely in the middle.

*Montague Brit. Shells p. 169. n. 11. Linn. Trans. viii. t. 3. f. 9.*

Shell resembling the last, but is less, covered with an olive-green

skin, is very slightly convex, rounded and broader at the end remote from the hinge, and has only 8 or 9 ribs on the side near the beak which are double the number in *M. discors*. Is probably only a variety of the last.

316. *M. Cygneus*. Oval, thin, brittle, transversely wrinkled, rounded and compressed at one end, produced at the other: hinge lateral.

*Br. Zool. t. 67. f. 78. Donovan t. 55. L. Trans. viii. t. 3. A. f. 2.*  
2 much less, thick, ponderous, rough, sloping on the fore-part.

*Linn. Trans. viii. p. 109. tab. 3. A. f. 3.*

Shell 2 inches and a half long, nearly 6 broad, covered with an olive-green skin under which it is ochraceous or varied with bright brown and sometimes radiate, within pearly-white: beak very small, venticose.

317. *M. stagnalis*. Oval, rather smooth, gibbous, with a flat space near the hinge.

*Sowerby Brit. Miscell. tab. 16.*

Shell 4 inches and a half long, nearly 8 broad, covered with a dark green skin and marked with darker rays: resembles *M. Cygneus* but is larger, more gibbous, more pointed on one side, and the margin is yellowish-brown.

318. *M. anatinus*. Oval, rather compressed, brittle, semitransparent, with a membranaceous margin, decorticated at the beaks.

*Br. Zool. t. 68. f. 79. Donovan t. 113. Da Cost. t. 15. f. 2.*

Shell 2 inches long, 3 and a half broad, resembles *M. Cygneus*, but is more compressed and rounded at the anterior end, and the cartilage side extends in a straight line to an acute angle, and thence continues in an oblique line towards the bottom.

319. *M. Avoensis*. Suboval, thin, wrinkled, olive-brown, straight or slightly arched on the front margin.

*Montague p. 172. Linn. Trans. viii. p. 110. tab. 3. A. f. 4.*

Shell resembling the last, but is much less, broader in proportion to its length, not so much produced at the hinge, and the posterior side is more produced and rounded.

320. *M. striatus*. White, pellucid, striate, with lengthened beaks.

*Walker minute shells. fig. 75. Shell minute.*

#### 49. PINNA. Nacre.

321. *P. pectinata*. Thin, pellucid, light horn colour longitudinally ribbed and spinous for half its width, obliquely striate transversely on the other.

*Donovan t. 10. Da Costa t. 16. f. 3. P. muricata.*

Shell 6 inches and a half long, 3 inches broad, tapering to the tip and a little curved, rounded at bottom, clothed towards the base with concave spines for half its width, the smooth side a little gibbous on the margin, within smooth pearly.

322. *P. ingens*. Nearly triangular, horn-colour, smooth; longitudinally striate on one side, with very rough scaly wrinkles on the broader end.

*Br. Zool. n. 81. Donovan t. 152. P. laevis.*

Shell near 12 inches long and 7 broad, pointed and curved at the tip, with sometimes a few faint longitudinal striae from the top, and rarely with a few concave spines; the lower-part rough with laminated transverse wrinkles.

323. *P. muricata*. Thin, semipellucid, flesh-colour, with

broad longitudinal ribs covering the whole surface, and a few concave spines towards the larger end.

*Montague Brit. Shells. p. 183. tab. 5. f. 3.*

Shell about 4 inches long and 2 wide, darker at the smaller end, straight, a little rounded and oblique at the larger end, with 10 or 12 very broad ribs running the whole length, and a few intermediate smaller ones at the narrow end.

*C. Univalves, and more or less spiral.*

## 50. NAUTILUS.

324. *N. Beccarii*. Spiral with the aperture obovate: whorls 4 or 5, twisted with deep joints.

*Adams Microsc. t. 14. f. 29. Walk. min. Shells. f. 63.*

2. With the spires reversed. *Walk. f. 64.*

Shell minute, white covered with a brown skin, crimson when the inhabitant is alive, convex above, flat beneath, with 10 grooved joints in the first spire.

325. *N. crispus*. Spiral, with the aperture semicordate: outer whorl with about 20 flexuous crenate joints.

*Adams Micr. t. 14. f. 30. Walk. min. Shells. f. 65.*

Shell minute, opaque, white, granulate and marked with flexuous striæ, the outer edge carinate; umbilicate each side, with a central siphon.

326. *N. lævigatulus*. Spiral, semipellucid, white, glossy, with smooth joints.

*Adams Micro. t. 14. f. 32. Walk. f. 67. Minute.*

327. *N. rotatus*. Spiral, smooth, with a semicordate apperture, and 6 joints marked with raised flexuous striæ; the keel very entire.

*Montague Brit. Shells. t. 15. f. 4. N. Calcar.*

328. *N. depressulus*. Spiral, opaque, white, subumbilicate both sides, with numerous depressed joints.

*Adams Micr. t. 14. f. 33. Walk. f. 68. Minute.*

329. *N. umbilicatus*. Spiral, opaque, white, umbilicate, with grooved joints.

*Adams Micr. t. 14. f. 34. Walk. f. 69. Minute.*

330. *N. crassulus*. Spiral, thick, white, umbilicate both sides, with fine joints.

*Adams Micr. t. 14. f. 35. Walk. f. 70. Minute.*

331. *N. lacustris*. Spiral, smooth, pellucid, horn-colour, with 4 whorls bordered on the outer edge with an opaque whitish spiral line.

*Philos. Trans. 76. t. 1. Montague t. 6. f. 3.*

Shell about 2 lines broad, compressed, slightly carinate, sometimes rufous brown, with 3 joints in the outer whorl, flat and deeply umbilicate beneath: aperture semioval.

332. *N. lobatulus*. Spiral, lobed, flattish, confluent, warty, with semilunar very thin partitions.

*Adams Microsc. p. 642. tab. 14. f. 36.*

Shell minute, white or yellowish, more or less orbicular or oblong, convex above, flat underneath, with 6-8 parallel lobes: aperture very narrow.

333. *N. carinatulus*. Whitish, transparent, carinate, with a narrow oval aperture.

*Adams Microsc. t. 14. f. 37. Walker f. 72. Minute.*



Shell minute, arched on the back, with 7 joints.

334. *N. semililius*. Opaque, brown, elongated, slightly arched, incurved at the tip, with raised joints: aperture with a small produced siphon.

*Adams Micr. t. 14. f. 38. Walker t. 73. Minute.*

335. *N. Legumen*. Subconic, nearly straight, compressed, jointed, margined on one side, with a lateral siphon.

*Montague Br. Shells. supplement. tab 19. f. 6.*

Shell minute, cultrate at the tip on one side, slightly curved on the other.

336. *N. rectus*. Opaque, brown, nearly straight, smaller at the end; with smooth depressed joints: aperture a small siphon.

*Walker minute shells f. 74. Montague p. 197.*

- 337 *N. Radicula*. Opaque, brown, subconic, nearly straight, with 8 or 9 smooth subglobular joints.

*Montague Brit. shells. t. 14. f. 6. t. 6. f. 4.*

Shell with sometimes from 2 to 5 joint, the terminal one sometimes much produced, sometimes short: aperture a small siphon.

338. *N. sbarcuatus*. Glossy-white, pellucid, subcylindrical, slightly curved, with 3 globular joints, the rest hardly defined.

*Montague Brit. Shells. p. 198. t. 6. f. 5. Minute.*

Shell often covered with a brown skin, and varying in having sometimes 10 distinct joints.

339. *N. jugosus*. Opaque, brown, subcylindrical, slightly curved, with 9 subglobular ridged joints.

*Montague Brit. Shells. t. 14. f. 4. Minute.*

340. *N. costatus*. Subcylindrical, straight, with 12 raised joints furnished with 4 equidistant strong ribs running the whole length of the shell.

*Montague t. 14. f. 5. Joints sometimes only 6.*

## 51. CYPRÆA. Cowry,

41. *C. Pediculus*. With numerous transverse furrows, some of which are forked. Nun.

*Borl. Cornw. t. 28. f. 12. Donovan. t. 43. Da Costa t. 2. f. 6.*

12. Smaller, pale, purplish or flesh-colour, without spots.

*Borl. Cornw. t. 28. f. 13. Br. Zool. t. 70. f. 82.*

Shell above half an inch long, glossy, tumid on the back, pale purple or whitish, and generally marked with 2 or 3 dark spots down the back, but sometimes without them, crossed with transverse raised striæ some of which are divided by intermediate shorter-ones.

342. *C. bullata*. Smooth, white, thin, pellucid, slightly produced at the top into 2 or 3 small convolutions.

*Montague Brit. Shells. p. 202. tab. 6. f. 1.*

Shell resembling the last, sometimes without transverse striæ; sometimes faintly striate half way from the back to the inner-lip, the other half finely striate longitudinally; margin of the outer lip not thickened.

52. *BULLA*.

343. *B. lignaria*. Ohovate, thin, yellowish-brown, with numerous pale transverse striae; the crown narrower and slightly umbilicate.  
*Br. Zool. t. 70. f. 83. Donovan t. 27. Da Costa t. 1. f. 9.*  
 Shell nearly 2 inches long, with a very large aperture which is contracted at top, white within; pillar flexuous and visible up to the crown.
344. *B. Ampulla*. Oblong-oval, smooth, glossy, whitish mottled and varied with light-brown; the crown narrower and slightly umbilicate.  
*Montagne Brit. Shell. p. 206. tab. 7. f. 1.*  
 Shell hardly half an inch long, with a wide aperture at bottom: pillar not visible to the end; spire none.
345. *B. patula*. Oblong, glossy white, smooth, lengthened at each end into a canal, slightly umbilicate at top.  
*Br. Zool. tab. 70. f. 85. A. Donov. t. 142. descrip. t. 143.*  
 Shell about an inch long, involute, the aperture narrower towards the top, produced at both ends, one end more elongated, with a flat margin: pillar twisted.
346. *B. aperta*. Suborbicular, pellucid, white, faintly striate, almost entirely open.  
*Donovan t. 120. f. 1. Da Costa tab. 2. f. 3.*  
 Shell about half an inch long thin, brittle: pillar small, slightly involute, visible to the end.
347. *B. Haliotoidea*. Suboval, pellucid, white, slightly striate; the aperture closed at the top where it is twisted sideways into 2 whorls.  
*Montague t. 7. f. 6. Vign. 2. f. 6.*  
 Shell 3 quarters of an inch long, half an inch broad, thin, very open but closed and twisted obliquely at the top.
348. *B. Plumula*. Ovate-oblong, depressed, pellucid, yellowish-white, concentrically wrinkled, almost entirely open, rounded and convolute with a single turn at top.  
*Montague tab. 15. f. 9. Vign. 2. f. 5.*  
 Shell half an inch long, a quarter broad, and nearly as broad at top, tinged with brown at one end, wrinkled within, open over the whole shell: pillar-lip slightly turned in.
349. *B. Catena*. Ovate, white, pellucid, transversely striate, almost entirely open, obtuse at top with a single turn.  
*Montague t. 7. f. 7. Linn. Trans. v. t. 1. f. 6-8.*  
 Shell minute, with chain-like striae, slightly umbilicate.
350. *B. emarginata*. Pellucid, smooth, gibbous, with the aperture emarginate and the lip slightly arched.  
*Adams Linn. Trans. v. tab. 1. f. 9. 10. 11. Minute.*
351. *B. denticulata*. Oblong, white, pellucid, nearly equal, obtuse, smooth; the aperture at top ending in a very acute tooth.  
*Adams Linn. Trans. v. tab. 1. f. 3. 4. 5. Minute.*
352. *B. Hydatis*. Oval, brittle, subpellucid, tumid,

slightly wrinkled longitudinally, umbilicate at top without volution.

*Montague Vign. 1. f. 1-5. Da Costa t. 1. f. 10. Donovan t. 88.*

Shell an inch long, 3 quarters broad, very open but contracted at the upper end, greenish or yellowish-horn-colour, sometimes finely striate transversely: *pillar* not visible to the end.

353. *B. Akeri*. Oval, membranaceous, horn-colour, with a convolute truncate channelled crown.

*Donovan t. 79. B. resiliens.*

Shell about 3 quarters of an inch long, nearly half broad, pellucid elastic, slightly wrinkled transversely, white within: *aperture* much contracted at top: *pillar* visible to the end.

354. *B. cylindracea*. Cylindrical, slender, smooth, white, deeply umbilicate; aperture very narrow, a little dilated at the base.

*Br. Zool. t. 70. f. 85. Donovan t. 120. f. 2. Mont. t. 7. f. 2.*

Shell about 6 lines long, 2 broad: *pillar* a little indented, without volutions, but only deeply umbilicate: *aperture* linear, a little wider at the base.

355. *B. umbilicata*. Oblong-oval, smooth, white, rounded and umbilicate at the top; aperture very narrow, a little dilated at the base.

*Montague Brit. Shells p. 222. tab. 7. f. 4. Minute.*

Shell resembling the last but is not so cylindrical, and its breadth is about one half its length.

356. *B. retusa*. Subcylindrical, opaque, white, longitudinally striate on the upper-part, truncate and umbilicate at top; aperture very narrow, a little dilated at the base.

*Montague t. 7. f. 5. Linn. Trans. v. tab. 1. f. 1. 2.*

Shell minute, with conspicuous involutions.

357. *B. obtusa*. Subcylindrical, opaque, white, longitudinally wrinkled, convolute and obtuse at top; aperture narrow, dilated at the base.

*Montague tab. 7. f. 3. Walker min. Shells f. 62.*

Shell about 3 lines long, half as much broad, often covered with a chefnut skin, with 4 or 5 slightly produced whorls; aperture a little compressed in the middle, not reaching quite to the top.

358. *B. diaphana*. Suboval, smooth, pellucid, white, ventricose, with 3 or 4 somewhat pointed whorls at top; aperture closed at top, very open below.

*Montague t. 7. f. 8. Br. Zool. t. 71. f. 87?*

Shell about 4 lines long, 3 broad, slightly produced to a point at top: *pillar* plain, not visible to the end.

359. *B. fontinalis*. Oval, pellucid, light horn-colour, ventricose, with 4 or 5 reversed, hardly produced obtuse whorls; aperture oblong, 3 fourths of its length.

*Da Costa p. 96. tab. 5. f. 6. Turbo adversus.*

Shell half an inch long, a quarter broad, sometimes with a few longitudinal and transverse ridges; the terminal whorls very small.

360. *B. rivalis*. Oval, pellucid, yellow horn-colour, with 4 or 5 reversed whorls tapering to a fine point: aperture oval-oblong.

*Chemn. Conch. 9. tab. 103. f. 877. 878.*

Shell half an inch long, a quarter broad, yellow, very brittle, resembling *B. fontinalis*, but is generally larger, exactly oval, the whorls are very obtuse, and the aperture more contracted towards the top.

361. *B. Hypnorum*. Oval, glossy, pellucid, horn-colour, with 5 or 6 reversed whorls tapering to a fine point, aperture ovate-lanceolate.

*Lister t. 1059. f. 5. Walk. min. Shells f. 54. Turbo.*

Shell above half an inch long, a quarter broad: resembles *B. fontinalis*, but the body is not so ventricose, the upper-whorls are produced to a fine point, and the aperture is shorter and narrower.

### 53. VOLUTA. *Mitre*.

#### A. With the aperture entire.

362. *V. tornatilis*. Oval, pointed at each end, spirally striate and banded: pillar with a single fold.

*Br. Zool. t. 71. f. 86. Donovan t. 57. Da Costa t. 8. f. 2.*

Shell hardly an inch long, pale red with 2 white bands and numerous longitudinal minute striæ: whorls 8, the first very large: aperture contracted, long.

363. *V. denticulata*. Oval, semipellucid, brown, with a raised rather pointed spire: pillar with 3 or 4 plaits; the lip denticulate.

*Donov. t. 138. Montague Suppl. tab. 20. f. 5.*

Shell nearly half an inch long, horny-brown, with a purplish top: whorls 7 or 8: aperture oblong-oval, half the length of the shell; the outer-lip with 2 or 3 tubercles. The younger shells have a single fold on the pillar-lip, and the lip is without the tubercles.

364. *V. alba*. Oval, white, opaque, finely striate longitudinally, with an obtuse spire of 4 whorls, and long narrow aperture.

*Adams Microsc. t. 14. f. 7. Walker min. Shells f. 61.*

Shell one tenth of an inch long, with obtuse whorls.

365. *V. unidentata*. Conic, smooth, glossy white, with 5 or 6 hardly raised whorls: pillar with a single tooth.

*Montague Brit. Shells. p. 324. Turbo unidentatus.*

366. *V. spiralis*. Conic, glossy white, with 4 or 5 whorls; the largest with transverse spiral ridges half way from the base; the rest finely ribbed longitudinally.

*Montagne Brit. Shell. p. 323. tab. 12. f. 9. Turbo spiralis.*

Shell minute, pellucid, glabrous, rather obtuse at top: whorls flattish, well separated by a fine spiral ridge: aperture suborbicular: pillar with a single spiral fold.

367. *V. interstincta*. Taper, glossy-white, with 5 flattish finely ribbed whorls: pillar with a single small tooth.

*Montague Brit. Shells. p. 324. t. 12. f. 10. Turbo.*

Shell minute, obtuse at top: whorls with longitudinal ribs, papillose towards the separating line: aperture suboval.

368. *V. plicata*. Slender, glossy white, with 6 smooth nearly flat whorls: pillar with a single tooth-like fold.

*Montague Br. Shells. p. 325. Suppl. t. 21. f. 2. Turbo.*

Shell minute, taper, subpellucid, with a fine separating line, ob-



tase at top: whorls not ribbed: aperture suboval, contracted a little to an angle at the upper-part: resembles *V. unidentata*, but is more obtuse, and the pillar instead of a tooth is furnished with a single fold on the inside.

369. *V. ambigua*. Rather taper, white, with 6 or 7 flattish whorls: pillar with an obscure fold: aperture suborbicular.

Montague p. 325. Suppl. t. 21. f. 4. Turbo pallidus.

Shell minute, rather pointed, with a well defined separating line: outer-lip arched: pillar with a small umbilicus formed by the reflection of its lip.

370. *N. pallida*. Cylindrical, smooth, white, obtuse and hardly whorled at top: pillar with 4 folds.

Donovan t. 66. Da Cost. t. 2. f. 7. Bulla.

Shell half an inch long, a quarter broad, oblong-oval, pure white, the upper-whorl extremely small: aperture narrow, reaching nearly the whole length. Resembles *Bulla cylindracea*, but has an evident spire and plaited pillar.

371. *V. catenata*. Oblong-oval, smooth, white, with 4 opaque white bands dotted with red: pillar with 4 folds.

Montague Br. Shells p. 236. tab. 6. f. 2.

Shell a quarter of an inch long, subpellucid, with 4 opaque bands of white oblong spots connected in a chain-like manner by small rufous spots or streaks: spire hardly visible, very obtuse: outer-lip dilated, not margined, thick: aperture narrow, reaching nearly the whole length.

372. *V. laevis*. Oval, quite smooth, swelling, with a very short spire: pillar with 2 folds: outer-lip gibbous, slightly denticulate.

Donovan t. 165. Montague p. 203. t. 6. f. 7. Cypræa.

Shell hardly half an inch long, greenish or yellowish-white, with sometimes a rosy tinge, rounded and a little reflected at the bottom, gibbous towards the top, with about 3 very short whorls: aperture narrow, the whole length of the shell.

#### 54. BUCCINUM. *Whelk*.

373. *B. undatum*. Oblong, coarse, with deep transverse undulate striæ: whorls 7 or 8, undulately ribbed.

Br. Zool. t. 73. f. 90. Donov. t. 104. Da Cost. t. 6. f. 6.

2. Without the undulate ribs. Br. Zool. t. 74. f. 91.

Shell about 5 inches long, generally with a rufous tinge, rough: aperture oblong-oval.

374. *B. glaciale*. Oblong-oval, nearly smooth or finely striate transversely: whorls 7 or 8, undulately ribbed, the lower one slightly carinate.

Donovan Brit. Shells v. tab. 154.

Shell resembling the last, but is more elongated and faintly striate, the outer-lip smooth, the larger whorl somewhat carinate, and the plaits are visible a little way only beyond the junctures of the whorls: aperture oval; outer-lip thick, spread, finely striate.

375. *B. Lapillus*. Oval, pointed, rugged, spirally ridged: pillar-lip broad, flattish, impressed near the top.

Br. Zool. t. 72. f. 89. Donov. t. 11. Da Costa t. 7. f. 1-4.

Shell about 2 inches long, with 5 or 6 whorls, white or yellow, with sometimes a spiral yellow or pale chestnut band or two, when young entirely rough with raised hollow membranaceous scales, which disappear on the larger whorl in its advanced stage of

growth, when old covered with longitudinal scales: *aperture* oval; *outer-lip* thin, slightly crenate, with sometimes 5 tooth-like projections on the inside one over the other: *pillar-lip* transversely rugged on the outside, with a slight impressed hollow near the top, and projecting into an angle in the middle within.

376. *B. reticulatum*. Oblong-oval, strongly reticulate; the *outer-lip* toothed, not thickened at the back.

*Br. Zool. t. 72. f. 92. Donovan. t. 76. Da Costa t. 7. f. 10.*

*Shell* nearly an inch and a half long, brown or varying in colour, strongly ribbed transversely and longitudinally, pointed: *outer-lip* rarely without teeth *Br. Zool. t. 72. f. 88*; *inner-lip* broad, glossy: *aperture* oval.

377. *B. Macula*. Oval, reticulate, *outer-lip* toothed, gibbous at the back: a small dark-purplish spot at the outer edge of the canal.

*Montague Br. Shells t. 8. f. 4. Br. Zool. t. 79.*

*Shell* about half an inch long, varying in colours: *aperture* suborbicular; *inner-lip* broad, faintly denticulate.

378. *B. ambiguum*. Subconic, thick, ochraceous, faintly striate transversely, with strong distant ribs swelling into tubercles at the junctures: *outer-lip* thickened, slightly denticulate.

*Montague Brit. Shells p. 242. tab. 9. f. 7.*

*Shell* about half an inch long, with 11-15 longitudinal ribs, generally rising into tubercles at the top of each spire, sometimes varied with a few ferruginous spots: *inner-lip* folded back, with a tooth-like ridge on the upper part.

379. *B. bilineatum*. Oval, smooth, whitish, with bands of brown spots; the larger-whorl with a double row of tubercles.

*Br. Zool. t. 79. Lister t. 698 f. 63. B. decussatum.*

*Shell* about 2 inches long, with 2-4 bands; upper whorls smooth: *aperture* suboval; *outer-lip* slightly toothed, inner rugged and granular.

380. *B. hepaticum*. Oblong-oval, pointed, brownish, strongly ribbed, tubercled near the junctures of the whorls: *inner-lip* with a tooth-like ridge.

*Montague p. 234. t. 8. f. 1. Lister t. 975. f. 50.*

*Shell* an inch long, and 5 eighths broad, tapering to a fine point, liver-colour with generally a white band: *whorls* 7 or 8, strongly ribbed, with a transverse depression near the top of each whorl, cutting the ribs into small knobs: *outer-lip* plaited, thick.

381. *B. Perdix*. Suboval, tumid, yellowish-brown undulate with white, with flat transverse ridges: *aperture* without teeth.

*Montague tab. 8. f. 5. Lister Conch. t. 984. f. 43.*

*Shell* about the size of a nut, spotted and marbled with white, with broad flat ribs: *whorls* 5 or 6: *pillar* slightly umbilicate; *outer-lip* thin, not reflected, expanded.

382. *B. lineatum*. Conic, pointed, smooth, with alternate chocolate-brown and white spiral bands.

*Donovan tab. 15. Da Costa tab. 8. f. 5.*

*Shell* a quarter of an inch long, varying in number and disposition of the bands; *outer-lip* marked by the brown bands on the margin.

383. *B. cinctum*. Conic, white, ribbed, with a filiform rufous brown line round the middle of each spire.

*Montague Brit. Shells p. 246. tab. 15. f. 1.*

Shell hardly a quarter of an inch long, closely ribbed and obscurely striate transversely: *outer-lip* denticulate within, with a small rufous spot on the edge, and another at the upper-angle of the aperture: *aperture* contracted.

384. *B. minimum*. Conic, chesnut-brown, ribbed, and decussate by transverse striae: *aperture* toothless.

*Montague t. 8. f. 2. Donovan t. 179. f. 2. B. brunneum.*

Shell about 2 lines long, reticulate, with about 5 whorls: *lips* smooth.

385. *B. terrestre*. Slender, smooth, glossy, pellucid, white, ending in an obtuse point; the first whorl elongated.

*Montague t. 8. f. 3. Walker f. 60. B. Acicula.*

Shell a quarter of an inch long, with 6 rather tumid oblique whorls, the first nearly equaling the 3 next: *lips* without teeth,

386. *B. obtusulum*. Ventricose, white, opaque, with 3 spires and oval aperture.

*Adams Microsc. t. 14. f. 25. Walker f. 59. Minute,*

387. *B. breve*. white, opaque longitudinally ribbed and transversely striate, with 5 spires and very short beak.

2. With 3 whorls. *Linn. Tr. 3. t. 13. f. 5. 6. B. minutum.*

*Adams Linn. Trans. 3. tab. 13. f. 3. 4. Minute.*

388. *B. laeve*. white, opaque, smooth, with a long beak: spires 3, the first more inflated than the second: *aperture* oval.

*Adams Linn. Trans. 3. t. 13. f. 7. 8. Minute.*

389. *B. obtusissimum*. White, opaque, smooth, with a long beak: spires 3, the first not larger than the second: *aperture* contracted.

*Adams Linn. Trans. 3. t. 13. f. 9. 10. Minute.*

## 55. STROMBUS.

390. *St. Pes Pelecani*. Whorls surrounded by a row of tubercles: *lip* expanded into 4 palmate angular claws.

*Br. Zool. t. 75. Donovan. t. 4. Da Costa t. 7. f. 7.*

Shell nearly 2 inches long, taper, grey or reddish, with 2 rows of smaller tubercles on the larger whorl: *outer-lip* much expanded, and gradually becoming divided into 4 channelled angular claws: *spire* long, pointed.

391. *St. costatus*. Whorls taper, swelling, with numerous longitudinal ribs, and a raised spiral line at the bottom of each: *lip* rounded.

*Donovan tab. 94. Da Costa tab. 8. f. 14.*

Shell hardly half an inch long, chesnut-brown, with numerous fine ribs, and a raised line at the bottom of each whorl becoming double at the base: *aperture* nearly orbicular; the *outer-lip* a little expanded.

## 56: MUREX. *Whelk.*

392. *M. despectus*. Oblong, nearly smooth, with the *aperture* dilated: whorls 8, with 2 raised spiral lines.

*Donovan v. tab. 180. Linn. It. Wgoth. t. 5. f. 8.*

Shell 3 or 4 inches long, whitish, with hardly visible striæ or wrinkles: *beak* elongated, reflected.

393. *M. carinatus*. Oblong, smooth, with the *beak* elongated; whorls 6, with 2 raised spiral lines.

*Donov. t. 109. Br. Zool. t. 77. f. 96.*

Shell 4 inches long, dirty-white: *whorls* sloping down to each other, and not rounded as in the last; the largest with 4 or 5 ridges: *outer-lip* dilated.

394. *M. subantiquus*. Oblong, strongly striate transversely, with the *beak* elongated: whorls 8, with 2 raised tubercled spiral lines.

*Donov. iv. tab. 119. M. antiquus.*

Shell about 4 inches long, of a more rugged and angular appearance than the last, crossed by undulate striæ and 1 or 2 elevated undulate and somewhat tubercled ridges: *outer-lip* dilated.

395. *M. antiquus*. Oblong, striate transversely, with the *beak* elongated: whorls 7 or 8, cylindrical.

*Br. Zool. t. 78. f. 98. Donov. t. 31. M. defectus.*

Shell nearly 6 inches long, dull white, thick, strong, red-saffron within: *aperture* angular on the fore-part: inner-lip smooth, with an acute entire margin.

396. *M. corneus*. White, slender, with 8 transversely striate rounded whorls: *aperture* oblong oval, ending in a deep lengthened canal, tubercled at top.

*Br. Zool. t. 76. f. 99. Donovan t. 38. Da Costa t. 6. f. 5.*

Shell about 3 inches long, sometimes covered with a brown skin, tubercled under the canal: *aperture* toothless.

397. *M. Erinaceus*. Angular, very rugged with small concave scales: *aperture* oval, ending in a closed tubular canal.

*Br. Zool. t. 76. f. 95. Donov. t. 35. Da Costa t. 8. f. 7.*

Shell nearly 2 inches long, brownish, longitudinally ribbed and transversely striate, imbricate with arched scales; the inner-margin toothed: *whorls* warty at the sutures, carinate between the warts: *aperture* oval, closed, with a short *beak*.

398. *M. purpureus*. Taper, rugged, ribbed rather obliquely, and crossed by numerous sharp ridges: *aperture* oval, ending in an open canal.

*Montague Brit. Shells p. 260. tab. 9. f. 3.*

Shell above half an inch long, dark purple with sometimes a few white Marks, purple within, with about 19 oblique ribs crossed by numerous ridges which give it a tubercled appearance: *aperture* oval: *pillar* obliquely striate: *margin* white, crenate.

399. *M. linearis*. Taper, rugged, strongly ribbed, crossed by fine spiral thread-like raised ridges: *aperture* oval, ending in an open canal.

*Montague Brit Shells tab. 9. f. 4. Donov. t. 179. f. 3.*

Shell above a quarter of an inch long, light brown, purplish-brown at the summits of the spiral lines, the apex generally purple: ribs 9 or 10: *aperture* oval; *margin* crenate within; *pillar-lip* smooth.

400. *M. muricatus*. Taper, rough, tubercled by the strong ribs being crossed by raised striæ: *aperture* oval, ending in a very long straight canal.

*Montague Brit. Shells p. 262. tab. 9. f. 2.*

Shell half an inch long, white with a flesh-colour or greenish



tinge, generally covered with an orange-red skin: *whorls* a little protuberant: *aperture* with the canal longer than the rest of the shell: *outer-lip* sharp, toothed at the edge; margin crenulate within.

401. *Turricula*. Taper, white, ribbed, striate transversely, with the whorls flattened at top: *aperture* narrow-oblong; the *outer-lip* angular at top.

*Montague Brit. Shells tab. 9. fig. 1. Donovan t. 156.*

Shell 3 quarters of an inch long, white, rather glossy, ending in a fine point, with 7 whorls rising perpendicular over each other; the ribs angular at top: *pillar-lip* smooth.

402. *M. rufus*. Taper, pale rufous-brown, with 15 or 16 small ribs, striate transversely: *aperture* narrow, oblong.

*Montague Brit. Shells. p. 263. n. 9.*

Shell 3 quarters of an inch long, with 6 whorls, sometimes of a chestnut colour: *pillar-lip* smooth.

403. *M. sinuosus*. Taper, white, or pale with a white band, with 7 strong ribs, striate transversely: *aperture* oblong-oval, with a deep cavity at the upper-angle of the canal.

*Montague Brit. Shells tab. 9. f. 8. Donovan t. 169. f. 2.*

Shell 3 quarters of an inch long, thick, with 6 whorls: *outer-lip* thickened by a rib; inner-lip replicated.

404. *M. Bamffius*. Ventricose, white, with 12 or 13 acute longitudinal ribs, not striate transversely: beak a little reflected.

*Donovan Brit. Shells v. tab. 169. f. 1.*

Shell above an inch long, whitish, strongly ribbed, but not striate transversely, the first whorl very large: *canal* a little recurved: *aperture* oval.

405. *M. costatus*. Oblong, taper, with 6 whorls and 8 or 9 very obscure longitudinal ribs, not striate transversely: beak a little reflected.

*Donovan t. 91. Da Costa t. 8. f. 14.*

Shell not a quarter of an inch long, purplish-brown, chocolate, or yellowish-white, with often deeper transverse bands: *aperture* oblong; the *outer-lip* thickened: beak hardly any.

406. *M. attenuatus*. Slender, tapering to a very fine point, yellowish-white, with 8 whorls and 9 longitudinal ribs: *aperture* narrow-oblong.

*Montague Brit. Shells p. 266. t. 9. f. 6.*

Shell half an inch long, not striate transversely, with the whorls hardly raised: *aperture* very narrow, ending in a canal.

407. *M. gracilis*. Slender, yellowish-brown, with 9 or 10 flattish whorls and 13 ribs, striate transversely: *aperture* oblong-oval.

*Montague Brit. Shells. p. 267. tab. 15. f. 5.*

Shell an inch long, with generally a white band round the larger whorl, and purplish brown between the junction of the whorls: *outer-lip* slightly crenate within.

408. *M. Nebula*. Taper, with 8 ribbed whorls, finely reticulate; the whorls hardly raised above the line of separation: *aperture* oblong-oval, oblique.

*Montague Brit. Shells p. 267. tab. 15. fig. 6.*

Shell about half an inch long, very sharp-pointed, yellowish-white, purplish-brown, pale rosy, or rufous, sometimes with the reticulations white: *whorls* separated by a fine thread-like line: *aperture* narrow; the canal turning a little to one side; *outer-lip* sharp.

409. *M. septangularis*. Taper, pale brown, with 7 or 8 strong smooth whorls and 7 longitudinal ribs: *aperture* oval-oblong.

Montague Brit. shells tab. 9 f. 5. Donovan. t. 179. f. 4.

Shell 5 eighths of an inch long, with 7 angular ribs hardly interrupted by the separating line: *outer lip* sharp, contracted to an angle at the upper-part, where the margin is a little indented: *beak* very short.

410. *M. fuscatus*. Taper, yellowish-brown, with 10 or 12 very short, tubercled whorls; the volutions with 3 or 4 crenulate striae between the tubercled spiral ridges.

Lister tab. 121. f. 17. Br. Zool. t. 82. f. 111\*?

Shell about an inch and a half long: *aperture* small, oval, ending in a small canal; the base spirally striate.

411. *M. tubercularis*. Taper, chesnut-brown, with 9 or 10 tubercled whorls separated only by a slight depression: *aperture* small, oval.

Montague Brit. Shells. p. 270. n. 17.

Shell a quarter of an inch long, pointed: *aperture* small, oval, ending in a canal, somewhat inclosed by the pillar turning inward.

412. *M. adversus*. Taper, pointed, light-brown, with 10 or 11 reversed tubercled spires: *aperture* oval.

Donovan t. 159. Adams Micr. t. 14. f. 12. Turbo.

Shell hardly half an inch long: *whorls* hardly defined by the separating line, with 3 rows of tubercles on each; the middle row smaller: *aperture* ending in a slight straight canal; the base with 2 or 3 spiral ridges.

413. *M. reticulatus*. Taper, rufous brown, with 11 or 12 strongly reticulate whorls: *aperture* oval, angular at the upper part, contracted into a slight canal at the lower.

Da Costa Brit. Shells p. 117. tab. 8. f. 13.

Shell above half an inch long, strong, with 4 spiral ridges on each whorl crossed by longitudinal rather oblique furrows, with sometimes a strong rib or two crossing some of the whorls: *aperture* contracted into a very slight canal; *outer-lip* a little indented; base not reticulate.

414. *M. minutissimus*. Taper, pellucid, with 5 spirally striate whorls and remote ribs: *beak* closed.

Adams Linn. Trans. iii. p. 65. Minute.

415. *M. contrarius*. With 4 reversed swelling whorls, marked with doubled striae: *aperture* oval, with a dilated canal.

Lister t. 950. f. 44. b. c. Chem. Conch. 9, f. 894. 895.

Shell about 2 inches and a half long, oval, with rounded whorls: *aperture* oval, ending in a dilated straight canal.

Obs. Dr. Lister having marked this species as British, declaring it to have been found at Harwich by Dr. Dale, there can be no question of the propriety of its place here.

57. TROCHUS. *Top Shell.*

416. *Tr. ziziphinus*. Conic, imperforate at the base spirally striate, the edge of each whorl with a raised smooth margin.

*Br. Zool. t. 83. f. 103. 104. Donovan. t. 52. Da Costa t. 3. f. 3. 4.*

*Shell* an inch long, nearly as much broad, pointed, with 7 or 8 whorls, livid or pale red varied with darker lines and waves, within iridescent: *aperture* angular: *base* flattish, with circular striæ, without spots.

417. *Tr. tenuis*. Conic, imperforate at the base, spirally granulate, not margined at the edge of the whorls.

*Montague Brit. Shells. t. 10. f. 3. Donovan t. 127.*

*Shell* an inch and a quarter long, rather less broad, brown or reddish with deeper marks: *whorls* with several rows of minute granulations, but without the raised ridge at the edge: *base* with several circles of small reddish spots.

418. *Tr. exiguus*. Conic, imperforate at the base, spirally crenate, the edge of each whorl with a raised tubercled margin.

*Donovan t. 8. f. 2. Da Costa t. 2. f. 4. Lister t. 616. f. 2.*

*Shell* 3 eighths of an inch long, grey-brown or purplish, with the tip crimson, sometimes spotted with white; within white, not perlaceous: *whorls* 6, with 4 or 5 fine crenulate ridges, and edged with a tubercled wreath resembling a twissed cord: *base* with circular ridges.

419. *Tr. striatus*. Conic, imperforate at the base, spirally ridged and finely striate longitudinally, not margined or tubercled at the edge of the whorls.

*Lister t. 621. f. 8. Donovan tab. 155. f. 1.*

*Size* of the last, from which it differs in having 6 whorls hardly definable by the line of separation, with 8 or 9 spiral ridges on each, crossed by fine longitudinal striæ; in wanting the crimson tip, and large spiral rib at the end of each whorl, in being marked by longitudinal reddish lines, and perlaceous within.

420. *Tr. tumidus*. Subconic, tumid, slightly perforated at the base, with 5 projecting whorls very finely and spirally striate, the larger-one with a subcarinate edge at the bottom.

*Montague Brit. Shells p. 280, tab. 10. f. 4.*

*Shell* a quarter of an inch long, strong, pointed but not taper, grey or yellowish-brown, or dark purplish-brown with obscure undulations, within perlaceous: *base* rounded, with a small perforation which is almost closed by age.

421. *Tr. crassus*. Subconic, rarely perforated at the base, with 5 rounded smooth whorls, grey-brown with numerous zigzag purplish-brown lines: *outer-lip* with a tooth-like protuberance at bottom.

*Donov. t. 71. Da Costa t. 6. f. 7. Tr. lineatus.*

*Shell* strong, coarse, top-shaped, perlaceous when the outer-coat is off: *whorls* rounded, separated by a depressed line, marked with close-set zigzag purplish-brown or black lines: *pillar-lip* smooth white, not pearly; the white part extending almost across the base, and flattened as if worn.

422. *Tr. Magus*. Subconic, perforated at the base, with 5 or 6 tumid whorls, finely striate, the ridges of each rising into obtuse tubercles.

*Br. Zool. t. 80. f. 107. Donov. t. 8. f. 1. Da Costa t. 3. f. 1.*

Shell 3 quarters of an inch long, about an inch wide, white or rosy with undulate crimson or purplish stripes blotches or spots: whorls marked by a deep separating line, ending in a point: base spotted, with a large perforation,

423. *Tr. cinerarius* Conic, produced at the point, with a small perforation at the base: whorls 5, cinereous with fine approximate oblique brown or purplish lines.

*Donovan. t. 74. two upper and lower fig. Da Costa t. 3. f. 11. 12.*

Shell five eighths of an inch long, as much broad, rather oblique; the whorls a little rounded and separated by a fine line.

424. *Tr. umbilicatus*. Flattish, rounded and depressed at top, with a large perforation at the base: whorls 5, white or greenish with purple waved or zigzag lines.

*Donovan t. 74. three middle fig. Br. Zool. t. 80. f. 106.*

Shell 5 eighths of an inch high, 3 quarters broad, marked with nearly obsolete spiral striæ, more flattened than the last, and the aperture reaches to the tip.

425. *Tr. terrestris*. Conic, perforated at the base, livid-white, finely striate longitudinally: base flat, with a strong carinate edge round it.

*Br. Zool. t. 80. fig. 108. Donovan. tab. 111.*

Shell not a quarter of an inch high, rather more broad, with sometimes a brown line round the middle of the whorls: whorls divided by a fine depressed line, and a prominent ridge at the base of each: base striate from the centre.

426. *Tr. fuscus*. Brown, opaque, margined, perforated, with 5 whorls and roundish aperture.

*Walk. min. Shells f. 58. Adams Micr. t. 14. f. 24. Minute.*

427. *Tr. cinereus*. Obtusely conic, perforated at the base, grey with narrow blackish lines: pillar-lip with 2 slight teeth and 2 transverse furrows.

*Donovan t. 155. f. 2. Da Costa tab. 3. f. 5.*

Shell size of a cherry, thick, strong, greenish-pearly about the perforation, with 5 whorls faintly striate circularly. It is probably a variety of *Tr. cinerarius*, or a foreign shell.

## 58. TURBO. Wreath Shell.

### A. Marine, with regular wreaths.

428. *T. Terebra*. Taper, pointed, with 12-16 whorls marked with numerous fine spiral striæ, some of which are prominent and acute.

*Br. Zool. t. 81. f. 113. Donovan. t. 22, f. 2. Da Costa t. 7. f. 5. 6.*

Shell about an inch and a half long, with 5-9 rather prominent ridges on each whorl, whitish or cream-colour, with brown red or orange marks.

429. *T. exoletus*. Taper, with 12-14 whorls obscurely striate, each with 2 prominent obtuse spiral ridges in the middle.

*Donovan tab. 22. f. 1. Da Costa tab. 7. f. 8.*

Shell 2 inches and a half long, white or purplish, variegated with chestnut; the whorls separated by a deep depression.

430. *T. Clathrus*. Taper, with 9-12 swelling whorls, and as many distant strong rather oblique longitudinal ribs.



*Br. Zool. t. 81. f. 111. 111. A. Donovan. t. 28. Da Costa t. 7. f. 11.*

Shell an inch and a half long, whitish, sometimes mixed with brown or ferruginous: *whorls* rounded, separated by a deep groove: *aperture* margined.

431. *T. Clathratulus*. Taper, with 5 or 6 whorls and about 15 approximate longitudinal ribs.

*Adams Microsc. t. 14. f. 19. Walk. min. Shells f. 45.*

Shell minute, white, opaque, resembling the last, except in size, number of whorls and disposition of the ribs: *aperture* margined.

432. *T. nitidissimus*. Taper, acute, pellucid-white, with 9 smooth much raised and rounded whorls.

*Montague Br. Shells p. 299. tab. 12. f. 1.*

Shell one tenth of an inch long, very slender, with the whorls much swollen and separated by a deep depression.

433. *T. unicus*. Taper, acute, pellucid white, with 9 rounded and raised whorls finely striate longitudinally.

*Montague t. 12. f. 2. Walker f. 40. Adams t. 14. f. 7.*

Shell 2 tenths of an inch long, with the striæ somewhat undulate, the intermediate spaces with extremely fine transverse ones: *aperture* inclining to oval.

434. *T. duplicatus*. Taper whitish, with 14 or 15 whorls each marked with 2 prominent acute transverse ridges.

*Br. Zool. t. 81. f. 112. Donovan t. 112. Da Costa t. 6. f. 3.*

Shell 2 inches and a half long, finely striate across between the ribs: *aperture* suboval.

435. *T. subtruncatus*. Tapering to an obtuse point, pellucid yellowish-white, with 6 or 7 swollen smooth whorls.

*Montague Br. Shells p. 300. tab. 10. f. 1.*

Shell 2 tenths of an inch long, sometimes with a few faint longitudinal striæ: *aperture* inclining to oval.

436. *T. truncatus*. Cylindrical, glossy, pellucid, horn-colour, with 4 smooth swollen whorls, abrupt as if truncate at the point.

*Montague Brit. Shells p. 300. tab. 10. f. 7.*

Shell 2 tenths of an inch long, rarely with a few longitudinal striæ, or crenulate in the sutures: *whorls* separated by a deep line: *aperture* slightly margined, suborbicular.

437. *T. littoreus*. Suboval, pointed, spirally striate; the first whorl very large: outer-lip thin and spreading.

*Perriwinkle. Br. Zool. t. 81. f. 109. Donovan t. 33. f. 1. 2.*

Shell about an inch long, with about 5 whorls separated by a fine line, various shades of red brown or yellow, plain or spirally banded with various colours: *aperture* suborbicular,

438. *T. jugosus*. Suboval, tumid, with 4 spirally grooved whorls; the first very large: outer-lip thin, slightly crenate.

*Montague Suppl. t. 20. f. 2. L. Trans. viii. t. 4. f. 7.*

Shell 3 eighths of an inch long, not much pointed, dull yellow or fulvous, with sometimes a greenish or purple cast, with white grooves: *pillar* broad, smooth.

439. *T. tenebrosus*. Subconic, rather obtuse, dark choco-

late brown, with 5 striate whorls, the first very much inflated.

*Montague Br. Shells. Supplem. t. 20. f. 4.*

Shell a quarter of an inch wide, dark chocolate brown, within dark purplish brown: whorls tumid, the first occupying half the shell: lips thin.

440. *T. petræus*. Conic, acute, purplish-brown, with 5 faintly and irregularly wrinkled whorls: aperture pear-shaped.

*Montague Brit. Shells p. 403. Helix petræa,*

Shell above a quarter of an inch long, within deep glossy purple; the first whorl very much swollen and occupying two-thirds of the shell. It is sometimes variegated with white or rufous.

441. *T. Ziczac*. Subconic, rather acute, slightly striate, blueish, with 5 or 6 whorls; the larger one carinate at the base.

*Linn. Transact. viii. p. 160. tab. 4. f. 14.*

Shell a quarter of an inch long, white towards the lip: aperture suborbicular, contracted towards the tip.

442. *T. rudis*. Suboval, smooth or faintly striate, with 5 distinct tumid whorls: lip thick, glossy within.

*Donovan t. 33. f. 3. Linn. Trans. viii. p. 159. t. 4. f. 12. 13.*

Shell about 3 quarters of an inch long, dirty yellow or brown, resembling the last, but the whorls are separated by a deep line: aperture nearly orbicular.

443. *T. mammillatus*. Suboval, striate with raised dots, and slightly angular by a few of the striae, the dots of which are larger.

*Donovan Brit. Shells v. tab. 173.*

Shell hardly an inch long, yellowish-white, with sometimes a deep band or two, elegantly striate and marked with raised dots: aperture orbicular.

444. *T. striatulus*. Suboval, slightly cancelled; the whorls striate on the upper-part, and marked with 3 raised membranaceous ridges on the lower.

*Da Costa t. 8. f. 10. Montague t. 10. f. 5.*

Shell hardly a quarter of an inch long, white, with 4 or 5 whorls, each ending in a flat top, striate longitudinally: aperture suborbicular, angular at the upper-part,

445. *T. vinctus*. Conic, smooth, subpellucid, rufous horn-colour with purplish-brown or chesnut bands: whorls 6, rounded.

*Montague Brit. Shells p. 307. n. 14.*

Shell about 3 eighths of an inch long, sometimes light horn-colour with faint bands, sometimes plain; the lower-whorl with commonly 4 or 5 bands, the 2 next with each two: tip small, not pointed: inner-lip thick, white, ending in a narrow channel.

446. *T. auricularis*. Conic, smooth, subpellucid, light horn-colour, with 5 much rounded whorls: lip much reflected, forming an angle about the middle.

*Montague Brit. Shells p. 308, n. 15.*

Shell 3 eighths of an inch long, rather pointed, the whorls divided by a deep line: aperture suboval, or ear-shaped: inner-lip much reflected, with a narrow channel behind the angle,

447. *T. crassior*. Conic, thick, pointed, yellowish-white, with 5 rounded whorls: pillar-lip wrinkled,

*Walker min. Shells f. 24. Montague p. 309.*

Shell half an inch long, often covered with a thin yellowish-brown skin, beneath which are a few obscure striae on the larger whorl: *lip* and inside white.

447. *T. pallidus*. Conic, thick, pale, with 5 rounded slightly bicarinate whorls: pillar smooth.

*Donovan Brit. Shells. v. tab. 178. f. 4.*

Shell half an inch long, with the lower-whorl swelling: *aperture* suboval, margined.

448. *T. parvus*. Conic, strong, with 5 or 6 rounded coarsely ribbed whorls.

*Donov. t. 90. Linn. Tr. t. 13. f. 29. 30. f. 15. 16. var.*

Shell about an eighth of an inch long; white, chestnut, or pale rufous, often variegated, sometimes ribbed on the lower whorl only, sometimes worn smooth: *aperture* suborbicular.

449. *T. costatus*. Glossy-white, with 4 or 5 much raised whorls with strong longitudinal ribs and fine transverse striae: *lip* bordered by a prominent grooved rim.

*Montague t. 10. f. 6. Linn. Trans. iii. t. 13. f. 13. 14.*

Shell about the eighth of an inch long, rather obtuse; *aperture* suborbicular with a ridge at the upper angle running, transversely backward: *lip* bordered by a strong prominent grooved rim, striate in the depression.

450. *T. striatus*. Pellucid, glossy-white, with 6 rather rounded whorls transversely striate and faintly ribbed on the upper-part: *aperture* suboval, margined.

*Linn. Trans. iii. t. 13. f. 25. 26. Walk. min. Shells. f. 49.*

Shell about an eighth of an inch long, sometimes covered with a brown skin, rather pointed, finely and regularly striate across: *lip* hardly acute.

451. *T. Bryereus*. Conic, strong, glossy-white, with 7 smooth finely ribbed whorls: pillar-lip smooth.

*Montague Brit. Shells. tab. 15. f. 8. Donovan t. 178. f. 3.*

Shell nearly a quarter of an inch long, resembling *T. costatus*, but is double the size, has more numerous and finer ribs, and is without the transverse striae: *lip* not margined.

452. *T. coniferus*. Taper, white, rather obtuse: whorls 6, with about 12 strong undulate ribs, somewhat papillous at the line of separation.

*Montague Brit. Shell. p. 314. tab. 15. f. 2.*

Shell a quarter of an inch long, thick, with about 12 undulate ribs, the tops of which at the sutures have the interstices formed into small cavities giving them a warty appearance, very finely striate across: *aperture* oval, oblique, strongly margined.

453. *T. denticulatus*. Conic, white, obtuse: whorls 6, with 9 or 10 oblique ribs denticulate at the line of separation.

*Montague Brit. Shells. p. 315. n. 23.*

Shell a quarter of an inch long, subpellucid, resembling the last, but has only 9 or 10 ribs not undulate nor striate between them: *aperture* suborbicular, not margined, but thickened at the rib.

454. *T. Cimeri*. Ohlong-oval; white, strongly decussate, forming the interstices into raised dots.

*Donovan t. 2. f. 1. Da Costa t. 8. f. 6. 9.*

Shell an eighth of an inch long, thick, rather obtuse, with

strongly cancelled whorls : aperture suboval, with a thick margin ; the outer-lip crenate within.

455. *T. ventrosus*. Conic, smooth, thin, horn-colour, with 6 much rounded whorls : aperture suboval, with an entire margin.

*Montague Brit. Shells. p. 317. tab. 12. f. 13.*

Shell an eighth of an inch long, pale horn-colour, pellucid, rather pointed : aperture orbicular-oval.

456. *T. Ulvæ*. Conic, pointed, thick, rufous-brown, with 6 or 7 hardly raised whorls : aperture suboval, with a slight depression behind.

*Br. Zool. t. 86. f. 120. Montague p. 318,*

Shell about a quarter of an inch long, opaque, with the whorls separated by a small line : inner-lip reflected, forming a small depression behind.

457. *T. subumbilicatus*. Conic, smooth, rather obtuse, yellowish-white, with 4 or 5 very tumid whorls : aperture exactly oval, with a slight umbilicus.

*Montague p. 316. Pulln. Dorset. t. 18. f. 12. b.*

Shell an eighth of an inch long, differing from the two last in having the aperture exactly oval, from *T. ulvæ* in having the whorls very much swollen, and from *T. ventrosus* in having the inner-lip a little reflected and forming a slight umbilicus or groove.

458. *T. Pullus*. Oval, smooth, with 4 or 5 much rounded whorls : aperture large, suborbicular, a little produced on the fore part.

*Donovan t. 2. f. 2-6. Da Costa t. 8. f. 1-3.*

Shell 3 eighths of an inch long, glossy, white with red or purplish marks variously disposed in bands spots or lines ; the first whorl very large.

459. *T. ruber*. Conic, smooth, pointed, reddish-brown, with 5 rounded whorls : aperture suborbicular, a little reflected on the pillar.

*Adams Linn. Trans. 3. tab. 13. f. 21. 22.*

2. White, perfectly transparent. *Montague p. 321.*

Shell an eighth of an inch long or rather more, with rounded whorls divided by a fine separating line.

460. *T. reticulatus*. Conic, pointed, light-brown, with 6 much raised strongly reticulate whorls : pillar subumbilicate.

*Adams Linn. Trans. 3. p. 66. tab. 13. f. 19. 20.*

Shell the tenth of an inch long, whitish-brown, opaque : aperture suborbicular, margined : inner-lip spreading on the pillar, forming a groove or slight umbilicus.

461. *T. semicostatus*. Conic, short, white, with 4 or 5 rounded whorls, the largest of which is faintly ribbed and obscurely striate transversely.

*Montague p. 326. Suppl. tab. 21. f. 5.*

Shell half a line long, obtusely pointed, with the ribs not extending to the lower part of the whorl where the transverse striae commence : aperture suborbicular : pillar-lip a little reflected ; pillar smooth.

462. *T. unifasciatus*. Conic, short, smooth, with 5 flattish whorls, the larger of which are marked with a purplish-brown band or two.



*Montague Suppl. t. 20. f. 6. L. Trans. 5. t. 1. f. 13. 14.*

Shell an eighth of an inch long, with the bands near the junctions of the whorls, seldom extending to the third: aperture suboval; inner-lip spreading, imperforate.

463. *T. nivosus*. Rather slender and obtuse, smooth, white, with 5 or 6 much rounded whorls: inner-lip and pillar quite smooth and even.

*Montague Brit. Shells. p. 326. n. 39.*

Shell about a line long, glossy, with a suboval aperture: resembles *Voluta interstincta*, but is without the tooth and the ribs.

464. *T. labiosus*. Subconic, pointed, pale horn-colour, with 7 or 8 flattish whorls; the 3 larger ones with 15 or 16 obscure ribs.

*Montague Brit. Shells. t. 13. f. 7. Helix labiosa.*

Shell about a quarter of an inch long, subpellucid, with frequently a purplish tip, within white: aperture oval: outer-lip thin, slightly reflected, generally purplish-brown, a little gibbous on the back: pillar undulate within, forming a small tooth-like elevation.

465. *T. Cingillus*. Conic, with 6 flat whorls marked with alternate bands of horn-colour and chesnut-brown, obscurely striate.

*Montague t. 12. f. 7. Donovan t. 178. f. 1. T. vittatus.*

Shell above the eighth of an inch long, subpellucid, pale brown at the tip, with generally 3 chesnut bands on the larger whorl, not visibly striate in the older ones: aperture suboval, contracted at the upper-part: outer-lip thin, not turning outwards: inner-lip a little thickened.

466. *T. quadrifasciatus*. Subconic, smooth, white, with mostly 4 faint brown bands: whorls 4, the first very large and slightly carinate.

*Montague p. 328. Supplem. tab. 20. f. 7.*

Shell hardly a quarter of an inch long, sometimes plain white, sometimes with two of the bands on the second whorl, sometimes with the bands united and forming 2 broad ones: aperture suborbicular: lip thick, with an acute margin: pillar broad, sinuate, umbilicate. Resembles *Helix canalis*, but is thicker and more opaque, has an angular appearance at the base of the larger whorl, and the outer-lip is thick.

467. *T. interruptus*. Subconic, pellucid, smooth, with 5 slightly raised whorls, white with longitudinal interrupted ochraceous streaks.

*Montague Supplem. t. 20. f. 8. Donovan t. 178. f. 2.*

Shell the eighth of an inch long, rather pointed, pale horny or white: aperture suborbicular: inner-lip reflected,

468. *T. retiformis*. White, opaque, with 4 tumid reticulate whorls: aperture suboval.

*Walker minute Shells f. 37. Minute.*

469. *T. strigatus*. White, opaque, with 3 whorls; the first with 3 transverse ridges: aperture suboval.

*Walker minute Shell. f. 38. Minute.*

470. *T. carinatus*. White, opaque, taper, carinate, with 7 whorls, and contracted margined aperture.

*Adams Microsc. t. 14. f. 18. Walk. min. Shells f. 44.*

471. *T. Sandvicensis*. White, pellucid, with 3 reticulate whorls, and oval 1-toothed aperture.

*Adams Microsc. t. 14. f. 23. Walker f. 55.*

472. *T. fulgidus*. Subconic, pellucid, smooth, with 3 whorls, the first very large, variegated white and bronze.

Montague p. 322. Adams Linn. Trans. iv. p. 531.

Shell half a line long, glossy, variegated white and bronze, usually in bands, with a small obtuse point: aperture suborbicular, with a thin margin.

473. *T. albulus*. Opaque, with 5 longitudinally ribbed whorls: aperture roundish not margined.

Adams Linn. Trans. 111. p. 66. tab. 13. f. 17. 18.

474. *T. scriptus*. Smooth, opaque, with 3 whorls marked with brown lines resembling characters: aperture roundish.

Adams Linn. Trans. 111. p. 65. tab. 13. f. 11. 12.

The lines exactly resemble those on the *Lichen scriptus*.

475. *T. subarcuatus*. White, pellucid, a little curved towards the tip, with 10 longitudinally ribbed whorls.

Adams Linn. Trans. 111. p. 66. tab. 13. f. 27. 28.

476. *T. Adamsii*. Pellucid, with 6 spirally striate whorls remotely ribbed: aperture oval.

Adams Linn. Trans. 111. t. 13. f. 31. 32. *T. elegans*.

477. *T. divisus*. White, pellucid, with 4 whorls, the upper-half of each smooth, the lower-half spirally striate: aperture suboval.

Adams Linn. Trans. iii. p. 254.

478. *T. subrufus*. Smooth, opaque, with 5 whorls somewhat angular above, dull red, with a white transverse band on the upper-part of each whorl.

Adams Linn. Trans. v. p. 3. tab. 11. f. 18. 19.

B. Land and fresh water, with regular wreaths.

479. *T. Muscorum*. Oval, obtuse, smooth, yellowish-brown, with 6 whorls: aperture margined, toothless.

2. Pillar-lip with a single tooth.

3. Half the size, toothless: aperture not margined.

Donovan t. 80. Da Costa p. 89. t. 5. f. 16.

Shell above the eighth of an inch long, pellucid, brown when filled with the inhabitant: aperture suborbicular, with a white margin a little reflected, forming a depression.

480. *T. sexdentatus*. Oval, obtuse, smooth, brown-horny, with 5 rather rounded whorls: aperture 6-toothed.

Montague Brit. Shells p. 337. t. 12. f. 8.

Shell a line long: aperture subangular, with mostly 4 teeth on the outer lip and 2 on the inner: the young shells have only 4 teeth.

481. *T. tridens*. Subcylindrical, smooth, obtuse, light brown, with 6 or 7 hardly raised whorls: aperture 3-toothed.

Montague Brit. Shells p. 338. tab. 11. f. 2.

Shell a quarter of an inch long, pellucid, with a single tooth on the margin and 2 near the base of the pillar, and sometimes 2 smaller alternate ones: aperture small, curved.

482. *T. Carychium*. Subconic, white, pellucid, obtuse, faintly striate longitudinally, with 5 rounded whorls: aperture with 2 teeth and the rudiment of a third.

*Montague Brit. Shells Suppl. t. 22. f. 2.*

Shell hardly a line long: aperture suboval, contracted, margined; outer-lip thickened inwards in the middle by a knob: pillar-lip with 2 teeth, and generally the rudiment of a third above the other.

483. *T. Juniperi*. Subcylindrical, obtuse, opaque, brown, with 8 or 9 obliquely striate whorls: aperture 7-toothed.

*Montague Brit. Shells p. 340, tab. 12, f. 12.*

Shell above a quarter of an inch long, with the whorls slightly raised: aperture suborbicular, margined, reflected, white, with 3 ridge-like teeth on the outer-lip, and 4 on the pillar: behind the pillar lip at the base is a large cavity.

484. *T. elegans*. Suboval, grey with a purple tinge: whorls 5, tumid, strongly striate spirally and crossed with faint longitudinal ones.

*Br. Zool. t. 82. f. 110. Donovan t. 59. Da Costa t. 5. f. 9.*

Shell 5 eighths of an inch long, sometimes marked with interrupted bands or longitudinal streaks of purplish-brown, often purple at the tip which is rather obtuse: aperture orbicular, slightly reflected, the margin faintly striate, covered with a horny spirally striate lid: pillar-lip with an obsolete cavity behind it.

485. *T. fontinalis*. Subconic, thin, horn-colour, umbilicate, with 4 or 5 much rounded smooth or very finely wrinkled whorls.

*Donov. t. 102. Montague Suppl. t. 22. f. 4.*

Shell about a quarter of an inch long, subpellucid, with very protuberant whorls, very minutely striate longitudinally, rather obtuse: aperture quite orbicular: pillar with a small perforation.

486. *T. nautilus*. Pellucid, light horn-colour, with 3 or 4 whorls hardly rising one above the other, annulate across, and crested on the back.

*Linn. Transact. viii. p. 169. tab. 5. f. 4.*

Shell the eighth of an inch wide, generally covered with a brown skin, furnished with distant raised annulations, which rise on the back into short crests or spines, flat and umbilicate underneath: aperture truncate, orbicular.

487. *T. cristatus*. Subpellucid, pale horny, flattish above, umbilicate underneath, with 3 or 4 cylindrical whorls.

*Walker Minute Shells f. 18.*

Shell the tenth of an inch wide, flat at top, with the whorls very faintly striate: aperture circular.

488. *T. depressus*. Subpellucid, slightly rugged, pale horn-colour, umbilicate underneath, with 4 whorls: aperture circular.

*Montague Brit. Shells p. 439. t. 13 f. 5. Helix.*

Resembles the last but is less, more solid and opaque, and is without spire: tip more prominent.

489. *T. fuscus*. Brown, opaque, with 5 striate whorls, and suboval aperture.

*Walker minute Shells f. 42. Minute.*

490. *T. rivulus*. White, opaque, with 4 striate whorls, and an oval margined aperture.

*Walker minute Shells f. 57. Minute.*

C. *With the whorls turning in a contrary direction.*

491. *T. bidens*. Taper, smooth, brown, pellucid, with 10 or 11 whorls slightly crenate in the suture: aperture 2-toothed behind.

*Linnean Transactions* viii. p. 178. tab. 5. f. 3.

Shell about half an inch long, armed with white minute papillæ or denticulations at the juncture of the whorls.

492. *T. laminatus*. Taper, smooth, rufous horn-colour, pellucid, with 10 rather raised whorls: aperture attached to the whorl, 2-toothed behind.

*Montague Brit. Shells* p. 359. tab. 11. f. 4.

Shell 3 quarters of an inch long: aperture suborbicular, contracted and joined to the body whorl; lip white, slightly margined and reflected; pillar not detached from the larger-whorl, furnished with 2 white tooth-like folds.

493. *T. biplicatus*. Taper, opaque, brown, longitudinally striate, with 12 or 13 whorls: aperture slightly detached from the whorl, 2-toothed behind.

*Montague Brit. Shells* p. 361. tab. 11. f. 5.

Shell the size of the last, from which it differs in being strongly striate longitudinally, and in having the angle of the aperture not joining the larger whorl.

494. *T. nigricans*. Taper, opaque, blackish, minutely striate, with 11 or 12 whorls: aperture with 2 rather remote teeth behind.

*Danovan t. 72. Br. Zool. t. 82. f. 116. T. perversus.*

Shell about half an inch long, resembling the 2 last, but is less, of a blackish-brown colour, is very finely striate, and the teeth are not contiguous.

495. *T. labiatus*. Taper, opaque, light brown, longitudinally striate: aperture 2-toothed, with a dilated thick white margin.

*Montague t. 11. f. 6. Da Costa tab. 5. f. 15.*

Shell 5 eighths of an inch long, with numerous strong regular striæ: whorls 9, flat, separated by a fine obscure line: aperture suborbicular, with a sinus at the upper end, and furnished with 2 tooth-like laminæ; pillar a little detached from the larger whorl.

496. *T. perversus*. Taper, pellucid, yellowish-horny, obscurely striate, with 8 or 9 slightly rounded whorls: aperture toothless.

*Montague t. 11. f. 12. Linn. Tr. viii. t. 5. f. 2.*

Shell a quarter of an inch long, rather obtuse: aperture suborbicular, with an obscure knob in the older-ones: pillar not detached; the edges thin, white.

497. *T. Vertigo*. Oval, opaque, brown, obtuse, with 5 faintly striate whorls: aperture somewhat triangular, toothed.

*Montague Brit. Shells* p. 363. tab. 12. f. 6.

Shell hardly a line long, generally with 9 teeth, one on the lip, and two on the pillar, with a protuberance at the angle of the lip; sometimes with 6 teeth, and even with the rudiments of a seventh: aperture slightly margined, indented.



## 59. HELIX. Snail-Shell.

## A. Whorls carinate, with an acute edge.

498. *H. Lapidica*. Pale brown, with transverse darker marks, umbilicate, convex on each side: aperture margined, transverse, oval.

*Br. Zool. t. 83. f. 121. Donovan tab. 39 f. 2.*

Shell 3 quarters of an inch wide, 3 eighths high, subpellucid, compressed dark horn with ferruginous blotches, very finely striate and minutely roughened like shagreen: aperture suboval, transverse, very slightly dilated, with an acute white margin; outer-lip reflected; inner-lip spread.

499. *H. subcarinata*. White, rather convex, umbilicate, finely striate across, with 3 fine raised lines on the larger whorl.

*Montague Brit. Shells. p. 438. tab. 7. f. 9.*

Shell the tenth of an inch wide, more than half as much high, subopaque, with 2 ridges round the base of the larger whorl, and one on the upper-part, which continues round the middle of the second whorl, finely striate across between the raised lines: aperture oval; outer-lip projecting; inner reflected, and spreading into a sharp angle.

500. *H. Planorbis*. Pale chesnut, flat, concave above, slightly carinate, umbilicate: aperture obliquely oval, rather acute at both ends.

*Linn. Trans. viii. t. 5. f. 13. Br. Zool. t. 83. f. 123.*

Shell about 5 eighths of an inch wide, pale and pellucid when empty, blackish when filled with the inhabitant, of 4 finely striate whorls which have a prominent margin at the base.

501. *H. planata*. Pale chesnut, flat, carinate in the middle of the whorls: aperture suboval, rather acute at one end.

*Linn. Trans. viii. t. 5. f. 14. Montague Suppl. t. 25. f. 1.*

Shell half an inch wide, resembling the last, but the margin of the whorls is placed in the middle, and the aperture is acute at one end only.

502. *H. Vortex*. Horn-colour, concave above, with about 6 whorls, carinate at the base: aperture oval, flat, acute.

*Br. Zool. t. 83. f. 124. Donovan. t. 75. Da Costa t. 4. f. 12.*

Shell hardly half an inch wide, sometimes covered with a greenish or rufous brown skin: whorls 6 or 7, flat and not umbilicate underneath: aperture compressed, a little angular, with an acute margin.

## B. With rounded whorls, umbilicate.

503. *H. carnea*. Rufous horn-colour, flat, umbilicate above, with 4 cylindrical whorls.

*Br. Zool. t. 83. f. 126. Donovan. t. 39. f. 1. Da Costa t. 4. f. 23.*

Shell about an inch wide, subpellucid, grey when young, *Br. Zool. f. 125.* minutely striate longitudinally and across, concave at top: aperture rather lunate, with a thin margin a little oblique downwards.

504. *H. Spirorbis*. Horn-colour, flat, concave on both sides, with 5 or 6 cylindrical whorls.

*Montague Brit. Shells. p. 455. Suppl. t. 25. f. 2.*

Shell 3 tenths of an inch wide, pellucid, yellowish-horny, equal and concave on both sides: *aperture* oval.

505. *H. contorta*. Chesnut, flat, equal both sides, slightly umbilicate: *aperture* linear-lunate, acute at the ends.

*Donovan t. 99. Da Costa t. 4. f. 11.*

Shell 2 tenths of an inch wide, horn-colour or rufous, with 5 or 6 whorls concave each side: *aperture* resembling the moon in its first quarter.

506. *H. alba*. Pale horn-colour, flattish, finely striate, umbilicate both sides: *aperture* dilated lunate.

*Montague Brit. shells p. 459. Suppl. t. 25. f. 7.*

Shell a quarter of an inch long, pellucid, covered with a brown skin, above flattish beneath convex: *whorls* 4, cylindrical, minutely striate longitudinally and across.

507. *H. fontana*. Horn-colour, flat, obtusely carinate, umbilicate at the base, with 3 whorls convex on both sides: *aperture* semioval.

*Montague Brit. Shells. p. 462. tab. 6. f. 6.*

Shell hardly 2 tenths of an inch wide, perfectly smooth, resembling the *Nautilus lacustris*, but is less convex on the upper-side, and is without the partitions within: *aperture* half oval, pointed at top, dilated towards its connection with the shell.

508. *H. paludosa*. White, smooth, flat, umbilicate, a little convex above: *aperture* nearly orbicular, with a thick reflected margin.

*Linn. Transact. viii. p. 193. tab. 4. f. 5.*

2. With the whorls striate or membranaceously annulate.

*Lightfoot Philos. Trans. 76. t. 3. f. 1-4. Turbo.*

Shell a tenth of an inch wide, with 4 whorls, subpellucid, with a clear white opaque margin to the *aperture*.

509. *H. Ericetorum*. Flat, whitish with a brown spiral band or bands, and very large perforation.

*Br. Zool. t. 85. f. 122. Donov. t. 151. f. 2. Da Costa t. 4. f. 8.*

Shell 3 quarters of an inch broad, one quarter high, white or yellowish white, with sometimes several bands on the large whorl: *aperture* suborbicular, with a thin margin hardly reflected.

510. *H. cingenda*. Yellowish-white with brown spiral bands, with a convex obtuse spire, slightly umbilicate: *aperture* suborbicular.

*Br. Zool. t. 85. f. 133. Montague Suppl. t. 24. f. 4.*

Shell 3 quarters of an inch wide, half an inch high, smooth, with 5 whorls, the larger-ones a little flattened at top; the upper-part with broad bands, and numerous darker interrupted ones; beneath with a single ciliate band; *whorls* a little raised, finely reticulate, dark chocolate-brown at top: *aperture* with a thin margin.

511. *H. virgata*. White with a purplish brown band, convex: *aperture* suborbicular, with a fine white raised line round the margin within.

*Br. Zool. t. 85. f. 133. A. Donovan t. 65. Da Costa t. 4. f. 7.*

Shell half an inch wide, with a single spiral band from the base to the tip, and several circular lines of the same colour round the base, within pale purplish-brown with a white raised thread-like line round the margin; sometimes rufous or pale with a white band: *perforation* narrow, deep.

512. *H. caperata*. White with purplish-brown bands,

tip with black, striate longitudinally, slightly carinate and depressed.

*Montague Brit. Shells* p. 430. tab. 11. f. 11.

Shell nearly half an inch wide, a quarter high, regularly striate longitudinally, with a purplish-brown band above, often interrupted with white, beneath with lines of the same colour; sometimes dark-brown or grey with a white belt and spots: aperture lunate, with a thin lip.

513. *H. rufescens*. Rufous-brown, slightly wrinkled, somewhat carinate and depressed: aperture semi-lunar.

*Br. Zool. t. 85. f. 127. Donovan t. 157. f. 1. Da Costa t. 4. f. 6.*

Shell half an inch wide, with numerous longitudinal striæ or obscure wrinkles, with 4 or 5 whorls, the first with an obscure paler ridge: outer-lip thin, a little reflected at the lower angle: perforation large, very deep.

514. *H. Cantiana*. Pale rufous with a blueish tinge, slightly striate and depressed: aperture suborbicular.

*Donovan t. 157. f. 2. Montague Suppl. tab. 23. f. 1.*

Shell 3 quarters of an inch wide, resembling the last, but differs in colour and size, in wanting the slight keel on the back of the first whorl, in the place of which is frequently a pale band, in having a smaller perforation, and in being obscurely striate.

515. *H. nitens*. Fulvous horn-colour, pellucid, slightly striate, depressed: aperture large, lunate.

*Linn. Trans. viii. t. 5. f. 7. Montague Suppl. t. 23. f. 4.*

Shell nearly half an inch wide, thin, brittle, glossy, whitish or greenish at the base: aperture with a thin margin, not reflected: perforation deep.

516. *H. radiata*. Pale horn-colour, with transverse chesnut rays, slightly carinate and depressed, closely striate, convex beneath.

*Montague Suppl. t. 24. f. 3. Da Costa t. 4. f. 15. 16.*

Shell a quarter of an inch wide, thickly set with dark brown waves or rays: aperture lunate; perforation deep.

517. *H. hispida*. Light horn-colour, diaphanous, clothed with thick-set whitish hairs, convex: aperture roundish-lunate.

*Donov. t. 151. f. 1. Da Costa t. 5. f. 10.*

Shell about a quarter of an inch wide, with 5 rounded whorls, clothed with short stiff hairs, finely striate across: lip thin, slightly reflected at the angle near the perforation.

518. *H. umbilicata*. Dark horny-brown, subconic, finely striate across, with 5 rounded whorls: perforation large and deep.

*Montague Brit. Shells* p. 434. tab. 13. f. 2.

Shell the tenth of an inch wide, rather conic and obtuse, with 5 much rounded and deeply divided whorls: aperture lunate, not reflected.

519. *H. trochiformis*. Horn-colour, pellucid, subconic, with 6 rounded smooth whorls: aperture somewhat lunate, transversely compressed.

*Montague Br. Shells* p. 427. tab. 11. f. 9.

Shell an eighth of an inch wide, and about as much high, sometimes with a rufous tinge, with 6 whorls deeply divided: lip thin, a little reflected, and forming a slight perforation.

520. *H. Lacuna*. Pale horn-colour, subglobular, with 4 tumid smooth whorls : pillar grooved with a long canal.

*Montague Brit. Shells. p. 428. tab. 13. f. 6.*

Shell a quarter of an inch wide, about as much high ; the 2 upper whorls placed rather laterally : pillar lip thick, white, grooved : perforation small, deep.

521. *H. spinulosa*. Brown-horny, subconic, with 5 convex whorls surrounded with sharp membranaceous rings and carinate with small spines on the back.

*Montague t. 11. f. 10. Phil. Trans. 76. t. 2. f. 1-5.*

Shell the tenth of an inch wide, covered with a rugged and spinous skin : aperture suborbicular.

522. *H. Pomatia*. Dirty-white, with mostly 3 reddish-brown bands on the larger whorl, subovate, obtuse, longitudinally striate : aperture round-lunate.

*Br. Zool. t. 84. f. 128. Donov. t. 84. Da Costa t. 4. f. 14.*

Shell 2 inches wide, subglobular, with 3 or more bands round the larger whorl, one of which continues round the rest : aperture large, the margin a little thickened and reflected ; pillar-lip reflected : perforation small.

523. *H. Arbustorum*. Mottled grey brown yellowish and chesnut, convex, pointed : aperture suborbicular, with a reflected margin, elongated on the forepart.

*Br. Zool. t. 85. f. 130. Donov. t. 136. Da Costa t. 17. f. 6.*

Shell hardly 3 quarters of an inch wide, slightly umbilicate, pale or yellow-chesnut marbled with oblong brown spots, and generally with a single spiral brown band, within chesnut with a broad pure white border.

524. *H. resupinata*. Horn-colour, glossy, with a large oval aperture, and the whorls of the tip reversed.

*Walker Minute Shells f. 24. Minute.*

525. *H. globosa*. White, opaque, glossy, round, with 2 smooth whorls, and roundish aperture.

*Walker minute Shells f. 25.*

526. *H. reticulata*. White, pellucid, reticulate, subumbilicate, with a single whorl, and rounded margined aperture.

*Walker minute Shells f. 26. Adams Microsc. t. 14. f. 12.*

527. *H. unispiralis*. White, opaque, smooth, umbilicate both sides, with a single spire, and rounded aperture.

*Walker minute Shell. tab. 1. f. 27.*

528. *H. striata*. Greenish-white, pellucid, striate, with 3 whorls reflected on the back : aperture suboval.

*Walker minute Shells f. 29. Adams Microsc. t. 14. f. 13.*

529. *H. coarctata*. White, pellucid, with 2 whorls : aperture roundish, contracted near the umbilicus.

*Walker Minute Shells f. 30.*

530. *H. tubulata*. With 3 longitudinally striate whorls, and a margined protruded tube at the base.

*Adams Linn. Trans. iii. p. 67. t. 13. f. 35. 36.*



Shell with a margined tube extending beyond the surface of the shell, in the place of an umbilicus.

531. *H. fasciata*. White with 3 transverse rich marone belts on the first whorl, smooth: whorls 3, the first more tumid.

*Adams Linn. Trans. v. t. 1. f. 20. 21.*

Shell slightly umbilicate, pellucid, with 3 belts, the middle-one broad, the two lateral-ones narrow.

532. *H. nitidissima*. Horny, glossy, with 2 whorls, very finely striate transversely.

*Adams Linn. Trans. v. t. 1. fig. 22-24.*

533. *H. bicolor*. Slightly umbilicate, smooth, with 2 whorls.

*Adams Linn. Trans. v. tab. 1. f. 25-27.*

Shell differing from the last, in being perfectly smooth, entirely devoid of glossiness, and in having the inside of the shell white.

*C. With rounded whorls, imperforate.*

534. *H. vivipara*. Yellowish-olive, with 3 brown bands, subconic, obtuse, finely striate: aperture suborbicular.

*Br. Zool. t. 84. f. 132. Donovan. t. 87. Da Costa t. 6. f. 2.*

Shell an inch and a half long, an inch wide, with 6 tumid whorls, the larger one with 3 narrow bands, the rest with 2, within smooth white banded: aperture contracted a little at the upper-part; pillar reflected.

535. *H. nemoralis*. Subglobular, diaphanous, variously banded: aperture roundish-lunate.

1. Citron flesh-colour, or tawny, without visible bands: lips brown.

*Da Costa t. 5. fig. 1. 2. 8.*

2. Citron, greenish-yellow, or flesh-colour, with a single brown band: lips brown.

*Da Costa t. 5. f. 3. Donovan. t. 13. Upper and middle fig.*

3. Citron, greenish-yellow, or flesh-colour, with numerous broader or narrower brown bands: lips brown.

*Da Costa t. 5. f. 4. 5. Donovan. t. 13. 3 lower fig.*

4. Variously coloured and banded, less: lips white and thickened.

*Chemn. Conch. 9. t. 113. f. 1199.--1201.*

Shell about an inch wide, with 5 much rounded whorls, obtuse, smooth or slightly striate: aperture broader than it is long.

536. *H. hortensis*. Yellowish, with 4 tawny bands interrupted by white spots: lip pure white.

*Br. Zool. t. 84. f. 129. Donovan. t. 131. Da Costa t. 4. f. 1.*

Shell an inch and a half wide, whitish or yellowish, with 4 interrupted bands, the third of which is broader, a little rugged with minute dots: whorls 4, with obscure plaits: lip margined, white.

537. *H. fusca*. Rufous horn-colour, pellucid, nearly smooth: aperture lunate.

*Montague Brit. Shells p. 424, tab. 31. f. 1.*

Shell about 3 eighths of an inch wide, hardly a quarter of an inch high, with 5 or 6 very slightly wrinkled whorls: lip thin, a little reflected at the lower margin. Resembles *H. rufescens*, but is less rugged, and has no trace of umbilicus.

538. *H. variegata*. Subpellucid, smooth, with 4 whorls marked with red lines; the first whorl tumid.

*Adams Linn. Trans.* iii. p. 67.

Shell imperforate, aperture with a much spread margin.

**D. Taper.**

539. *H. elegantissima*. White, glossy, tapering to a fine point, with oblique equidistant grooves: aperture a little angular below.

*Montague t. 10. f. 2. Donovan t. 179. f. 1. Turbo.*

Shell about a quarter of an inch long, often covered with a brown skin, with 9-13 flattish whorls, the ribs of which are broader than the grooves: aperture suborbicular; inner lip a little reflected.

540. *H. decussata*. White, tapering to a fine point, finely decussate: aperture angular at both ends.

*Montague Brit. Shells p. 399. tab. 15. f. 7.*

Shell 3 tenths of an inch long, with 8, or 9 slightly raised whorls, strongly striate longitudinally, and crossed by very fine lines: aperture suboval, contracted at both ends: lip slightly reflected.

541. *H. subulata*. Pale flesh-colour, with testaceous or chesnut spiral bands, tapering to a fine point, smooth: aperture oval.

*Da Costa p. 117. Donovan t. 172. Turbo.*

Shell 3 quarters of an inch long, glossy, sometimes white or reddish, with about 10 flat whorls, marked with lighter or darker bands: aperture much rounded at top, and contracted at bottom.

542. *H. polita*. White, quite smooth, tapering to a point, imperforate: aperture oval.

*Br. Zool. t. 79. upper fig. Donovan t. 177. Turbo.*

Shell about half an inch long, polished, with 9-13 flat whorls: aperture ending in a sharp point; inner-lip reflected.

543. *H. bifaciata*. White, with an interrupted brown band, oblong, slightly wrinkled and umbilicate: aperture oval.

*Br. Zool. t. 82. f. 119. Donov. tab. 18. \* Turbo.*

Shell nearly 3 quarters of an inch long, with rather rounded whorls, and brown or chesnut streaks forming a band or two at the base: lip a little reflected, forming a small perforation.

544. *H. octona*. Pale horny, with 8 rounded finely striate whorls, very slightly umbilicate: aperture roundish.

*Linn. Transact. viii. p. 211. tab. 5 f. 20.*

Shell about the size of a grain of rye, with 8 tumid whorls; perforation so small as hardly to be distinguished: aperture nearly orbicular.

545. *H. octanfracta*. Horn-colour, with 8 flattish finely striate whorls, imperforate: aperture oval.

*Br. Zool. t. 86. f. 195. Montague. tab. 11. f. 8.*

Shell above 3 eighths of an inch long, often covered with a blackish skin: differs from the last in being of a more conic form, without the least trace of perforation, and in the whorls not being so distinctly separated.

546. *H. Lackhamensis*. Rusty-brown, oval-oblong, a little rugged, slightly perforated: aperture roundish-lunate, with a reflected margin.

*Montague Brit. Shells p. 394. tab. 11. f. 3.*

Shell 3 quarters of an inch long, rusty-brown varying to horn-colour and grey, with 7 flattish whorls: aperture whitish, with often a purplish tinge: lip reflected, and forming a linear cavity.

547. *H. obscura*. Brown-horny, opaque, oval-oblong, with 5-7 rather rugged whorls, slightly perforated: aperture roundish-lunate, with a white lip.

*Linn. Trans.* viii. t. 5. f. 11. *Montague suppl.* t. 22. f. 5.

Shell 3 eighths of an inch long, rather obtuse, with rather rounded whorls: resembles the last, but is about half the size, and more opaque.

548. *H. lubrica*. Horn-colour, smooth, rather taper, with 6 somewhat rounded whorls, imperforate: aperture oval.

*Linn. Trans.* viii. t. 5. f. 12. *Br. Zool.* t. 82. f. 118.

Shell a quarter of an inch long, glossy, with a fulvous or yellowish tinge, rather obtuse: lip thickish, generally reddish-brown.

549. *H. vitrea*. White, smooth, subcylindrical, with 4 rounded whorls: aperture oval, contracted, at one end.

*Montague Brit. Shells.* p. 321. tab. 12. f. 3. Turbo.

Shell an eighth of an inch long, pellucid, rather obtuse: aperture not margined.

550. *H. Punctura*. Yellowish-white, conic, with 6 globular reticulate whorls: aperture suborbicular.

*Montague Br. Shells.* p. 320. tab. 12. f. 5. Turbo.

Shell the tenth of an inch long, very minutely decussate, rather taper.

551. *H. arenaria*. White, conic, with 5 rounded whorls strongly striate longitudinally and very finely decussate: aperture oval.

*Montague p.* 322. t. 12. f. 4. Turbo decussatus.

Shell hardly the eighth of an inch long, rather glossy, not much pointed: lip thin: differs from the last in being more cylindrical, in its stronger longitudinal striæ, and in having the aperture contracted towards one end.

#### E. Oval, imperforate.

552. *H. stagnalis*. Horny, oval tapering to a point, somewhat angular: aperture oval, large.

*Br. Zool.* t. 86. f. 136. *Donovan.* t. 51. f. 2. *Da Costa.* t. 5. f. 11.

Shell nearly 2 inches long, whitish, grey or dusky, very thin, with 6 or 7 whorls, the first very large and marked with a few irregular transverse ridges, the rest suddenly tapering to a fine point: aperture very large; lip thin.

553. *H. fragilis*. Horn-colour, oval tapering to a point, cylindrical, pellucid: aperture oval oblong.

*Montague Brit. Shell.* p. 369. tab. 16. f. 7.

Shell extremely tender, pellucid, resembling the last, but the whorls turn more obliquely, the larger not so tumid, and the aperture is smaller and more oblong.

554. *H. palustris*. Brown, horny, oblong, with 6 rather rounded whorls: aperture oval.

*Br. Zool.* t. 86. f. 136. *B. Donov.* t. 175. f. 1. 2. *Mont.* t. 16. f. 10.

Shell about 3 quarters of an inch long, grey or covered with a brown skin, minutely striate longitudinally and across, purplish or brownish within: differs from *S. stagnalis* in being less, not so brittle, not tapering to so fine a point, and in the larger whorl being less tumid: lip reflected.

555. *H. fossaria*. Horn-colour, suboval, with 5 or 6 rounded deeply divided whorls: aperture oval.

*Montague t. 16. f. 9. Linn. Trans viii. t. 5. f. 9.*

Shell 3 eighths of an inch long, thin, pellucid, resembles the last but is much smaller, the whorls are more deeply divided and very rarely wrinkled across, and the aperture is more oval.

556. *H. detrita*. Conic, white with a rufous spiral band or more: aperture oval.

*Montague Brit. Shells. p. 384. tab. 11. f. 1.*

Shell 3 quarters of an inch long, with 6 slightly rounded whorls, a little wrinkled longitudinally, generally marked with a single band, sometimes with 3 on the larger whorl the middle one of which is narrower, inner-lip a little reflected, and forming a small depression.

557. *H. succinea*. Oblong, acute, fulvous, diaphanous, with 3 whorls: aperture oval.

*Montague t. 16. f. 4. Donov. t. 168. f. 1. H. putris.*

Shell hardly half an inch long, very thin and brittle, amber-colour, with the first whorl very large but not tumid: aperture reaching over more than half the shell: lip very thin.

558. *H. putris*. Oval, obtuse, yellow, with 4 whorls; aperture oval.

*Br. Zool. t. 86. f. 137. Montague t. 16. f. 3. H. peregra.*

2. With a white thick lip. *L. Trans. viii. t. 5. f. 8.*

Shell an inch long, often covered with a dusky-brown skin, thin, with numerous oblique striae: whorls 4, the first large and tumid: aperture reaching over 3 fourths of the shell.

559. *H. tentaculata*. Conic, obtuse, yellowish-white, with 5 or 6 rounded whorls: aperture oval.

*Br. Zool. t. 86. f. 140. Donov. t. 93. Da Costa t. 5. f. 12.*

Shell half an inch long, diaphanous, with deeply divided whorls, rather obtuse: aperture suborbicular, closed with a concentrically wrinkled lid.

560. *H. canalis*. Conic, horn-colour, with 5 smooth rounded whorls: aperture suborbicular; pillar with a groove.

*Montague Brit. Shells p. 309. t. 12. f. 11. Turbo.*

Shell 3 eighths of an inch long, pellucid, acute, with the first whorl large: aperture subangular; outer-lip thin; pillar broad, white, grooved, ending in a small depression.

561. *H. auricularis*. Conic, smooth, yellowish-white, obtuse, with a short acute spire: aperture dilated, ear-shaped.

*Br. Zool. t. 86. f. 138. Donov. t. 51. f. 1. Da Costa t. 5. f. 17.*

2. *Montague p. 381. t. 16. f. 1. H. limosa.*

Shell an inch or more long, often covered with a brown skin, with 4 whorls, the first very large and tumid and finely striate across, within yellowish: lip much extended, a little reflected, sometimes projecting into an angle above.

562. *H. glutinosa*. Very tumid, yellow horn-colour, with 3 whorls ending in an obtuse spire: aperture oval, very large.

*Montague Brit. Shells. p. 379. tab. 16. f. 5.*

Shell above half an inch long, very thin and brittle, smooth or faintly wrinkled, sometimes covered with a glutinous skin: aperture reaching nearly to the tip.



563. *H. lutea*. Suboval, dull orange, with about 3 whorls ending in an obtuse spire: aperture oval, very wide.

*Montague Brit. Shells p. 380. t. 16 f. 6.*

Shell nearly half an inch long, smooth; the first whorl very large: lip a little spread: resembles *H. auricularia* 2. but is less, not so tumid, and thicker and stronger.

564. *H. lævigata*. Flesh-colour, very obtuse, with 3 whorls; the first very large and wide, the others minute and placed laterally.

*Br. Zool. t. 86. f. 139. Donovan tab. 105.*

Shell about the size of a pea, suborbicular, yellowish or reddish flesh-colour, very thin and brittle, pellucid, with the smaller whorls placed laterally and hardly raised, finely striate longitudinally and wrinkled transversely, often covered with a thick brown skin: aperture very wide and rounded, thin, within whitish or or purplish-brown.

565. *H. bulloides*. Horn-colour, oval, smooth, glossy, with 3 reversed whorls: aperture oval.

*Donovan's Brit. Shells. v. tab. 168. f. 2.*

Shell 3 eighths of an inch long, dark horn-colour, brittle, obtuse; the first whorl very large but not much inflated.

## 60. NERITA. *Nerite*.

566. *N. Canrena*. Smooth, with a slightly raised and pointed spire, and gibbous cloven umbilicus.

*Donovan's Brit. Shells. v. t. 167. N. intricata.*

Shell about the size of a hazel nut, whitish, with yellowish or ferruginous zigzag marks spirally disposed: aperture wide, semicircular: perforation deep, cloven.

567. *N. glaucina*. Smooth, with a rather obtuse spire: umbilicus partly closed by the thick white reflected lip.

*Br. Zool. t. 87. f. 141. Donov. t. 20. f. 1. Da Costa t. 5. f. 7.*

Shell about half an inch long, white, grey, reddish or livid, with generally a chain of zigzag short bluish or chestnut lines round the sutures of the whorls: spire obtuse, a little pointed: aperture roundish-lunate.

568. *N. Mammilla*. Oval, smooth, white or yellowish: umbilicus nearly closed by the reflected lip: aperture oval.

*Donovan Brit. Shells. tab. 144. N. nitida.*

Shell about half an inch long, polished, oval-oblong, with a short spire, the sutures of which are nearly obliterated: aperture oval; lip toothless, gibbous beneath: perforation nearly closed by the reflected lip.

569. *N. fluviatilis*. Suboval, rugged. imperforate: lips toothless.

*Br. Zool. t. 87. f. 142. Donov. t. 16. f. 2. Da Costa. t. 3. f. 17. 18.*

Shell 3 eighths of an inch long, generally white reticulately marked or spotted with various shades of pink purplish or brown, sometimes with a spiral band or two, covered with a brown or yellowish skin, under which it is glossy or finely wrinkled: whorls 3, the first very large, the spire obtuse: aperture nearly the whole length of the shell: pillar broad flat, white: mouth covered with an orange lid.

570. *N. pallidula*. Yellowish horn-colour, smooth, with a large umbilicus: aperture semilunar, much spread.

Donovan t. 16. f. 1. Da Costa p. 51. t. 4. f. 4. 5.

Shell near half an inch long, convex, with the spire a little prominent, covered with a brown skin, the first whorl very large, sometimes faintly wrinkled: lip thin, fringed by the skin; pillar thick, white.

571. *N. littoralis*. Globular, thick, smooth with a flat spire: lips toothless.

Br. Zool. t. 87. f. 143. Donovan. t. 20. f. 2. Da Costa t. 3. f. 7.

Shell 3 quarters of an inch high, nearly as much broad, thick, strong, various shades of yellow red or brown, often variegated in numerous varieties, sometimes banded, with 4 or 5 whorls, the first very large: aperture suborbicular, or inclining to oval, with the margin thickened within.

572. *N. pellucida*. Pellucid, smooth, with 3 whorls.

Adams Linn. Trans. iii. p. 67. Minute.

2. Subpellucid, smooth, with 2 whorls.

Adams Linn. Trans. iii. p. 67. *N. alba*.

The two last may probably be only the young shells of *N. glaucina*.

## 61. HALIOTIS. Sea ear.

573. *H. tuberculata*. Dull rufous-brown, suboval, transversely rugged and tubercled on the back.

Br. Zool. t. 88. f. 144. Donovan. t. 5. Da Costa t. 2. f. 1. 2.

Shell 3 or 4 inches long, 2 or 3 wide, sometimes mottled, striate longitudinally, wrinkled transversely, with a few raised tubercles, perlaceous within, open near the whole length, with a thin irregular outer margin: lip white, inflected: spire a little raised: perforations about 20-28, of which 5 or 6 are open.

## 62. PATELLA. Limpet.

### A. Furnished with an internal lip.

574. *P. chinensis*. Subconic, smooth, entire, whitish, internal lip lateral.

Donovan tab. 129. *P. pallida*.

Shell above half an inch wide, not so much high, subconic, whitish or pale brown, entire at the margin, with the crown central ending in a small whorl, concentrically wrinkled and rough with small concave scales; within glossy, white, with a broad flat thin sub-spiral lip near the margin.

### B. With the margin angular, or irregularly toothed.

575. *P. vulgata*. With about 14 obsolete angles, and dilated acute margin.

Br. Zool. t. 89. f. 145. 146. Donovan. t. 14. Da Costa t. 1. f. 1. 2. 3.

Shell 2 inches or more wide, conic or a little depressed, dirty green or brown, sometimes varied with ferruginous or brown marks, finely striate longitudinally, within glossy, yellowish horn-colour, whitish at the bottom: crown rather obtuse, nearer the smaller end: margin sometimes indented, sometimes entire.

### C. With a pointed recurved crown.

576. *P. Mitrula*. Entire, subconic, white, with concentric imbricate wrinkles.

Montague Brit. Shells p. 486. t. 13. f. 9. *P. antiquata*.

Shell about half an inch wide, thick, opaque: aperture oval: crown recurved, nearer one end.

577. *P. ungarica*. Entire, conic, longitudinally striate, with a pointed hooked revolute crown.

*Br. Zool. t. 90. f. 147. Donovan. t. 21. f. 1. Da Costa t. 1. f. 7.*

Shell about an inch wide, reddish or flesh-colour, often covered with a hairy skin, sometimes transversely plaited, within smooth rosy-white: margin often crenate: crown on one side, much recurved.

578. *P. militaris*. Entire, white, conic, striate and faintly reticulate, with a pointed hooked obliquely recurved crown.

*Montague tab. 13. f. 11. Donovan tab. 171.*

Shell about half an inch wide, finely striate both ways: crown revolute, turning to one side: aperture nearly orbicular.

579. *P. intorta*. Nearly entire, ferruginous, with, alternately larger and lesser ribs: crown slightly recurved.

*Br. Zool. tab. 90. f. 148. Donovan tab. 146.*

Shell near an inch wide, covered with a ferruginous skin, generally decorticated at top, pale within, with numerous subimbricate ribs: aperture oval: margin entire or slightly toothed.

580. *P. lacustris*. Very entire, oval, whitish, membranaceous, with a pointed recurved crown.

*Donovan tab. 147. Da Costa tab. 2. f. 8.*

Shell a quarter of an inch wide, covered with a greenish or dusky skin, sometimes slightly striate or transversely wrinkled: crown pointed, near one end.

581. *P. oblonga*. Very entire, oblong, contracted in the middle, horn-colour, with a pointed reflected oblique crown.

*Donovan t. 150. Philos. Trans. 76. t. 3. f. 1. 2. 3. 5.*

Shell a quarter of an inch long, one tenth wide, covered with a greenish skin: crown small, turning to one side, near the narrow part of the margin.

*D. Entire, without the pointed crown.*

582. *P. pellucida*. Obovate, gibbous, pellucid, yellowish-horn-colour with 4 blue rays of dots on one side.

*Br. Zool. t. 90. f. 150. Donovan. t. 3. f. 1. Da Costa t. 1. f. 5. 6.*

Shell 3 quarters of an inch wide, more or less conic, sometimes a little depressed with an obscure crown, with 3-5 rays of blue dots on one side from the crown to the margin.

583. *P. parva*. Entire, oblong-orbicular, white with reddish rays, finely striate, with the point of the crown nearly marginal.

*Donovan tab. 21. f. 2. Da Costa tab. 8. f. 11.*

Shell 3 eighths of an inch long, 2 eighths wide, mostly covered with a dusky skin, circularly wrinkled, whitish or bluish, radiate with reddish, more or less distinctly: crown obtuse: margin very entire.

584. *P. bimaculata*. Yellow, with an oblong black spot at each end, oval, convex, depressed, with an obsolete crown.

*Montague Brit. Shells, p. 482. tab. 13. f. 8.*

Shell a quarter of an inch long, an eighth wide, opaque smooth, with a transverse oblong black spot at the smaller end, and a longitudinal one near the margin, within yellow: margin thin.

585. *P. Rotula*. White, opaque, flat, round, with a regularly toothed margin.

*Kæm. and Adams Microsc. p. 635. t. 14. f. 9. P. Rota.*

Found at Sandwich: very minute and rare.

*E. With the crown perforated.*

586. *P. Fissura*. Oval, reticulate, cloven half way up on the fore-part: crown a little recurved.

*Br. Zool. t. 90. f. 152. Donov. t. 3. f. 2. Da Costa t. 1. f. 1.*

Shell half an inch long, 3 eighths wide, conic, brown or white, within white or flesh-colour: margin crenate, with a slit on one side half way to the crown.

587. *P. græca*. Oval, convex, strongly reticulate, crenate on the margin within.

*Br. Zool. t. 89. f. 153. Donov. t. 21. f. 3. Da Costa t. 1. f. 3.*

Shell about 3 quarters of an inch long, hardly half an inch wide, a quarter high, dull brown, within white or radiate with dull purple, somewhat tubercled by the crossing of the transverse striæ: margin indented: crown not central, truncate, with an oblong perforation.

588. *P. Apertura*. Subconic, white, strongly ribbed longitudinally with a few transverse ridges: crown recurved.

*Montague Brit. Shells. p. 492. tab. 13. f. 10.*

Shell hardly a quarter of an inch long, not an eighth high, glossy white within, with strong longitudinal tubercled ribs crossed by a few ridges: crown reflected, with a rhombic perforation: margin oval, crenulate.

### 63. DENTALIUM. Tooth-shell.

589. *D. Dentalis*. White, slightly curved, interrupted, with about 20 striæ.

*Rumph. mus. t. 41. f. 6. Born. mus. t. 18. f. 13.*

Shell about half an inch long, tapering to a fine point, pervious, closely striate, with sometimes a few faint annulations at the larger end, opaque white, sometimes tipped with red.

590. *D. Entalis*. White or yellowish, slightly curved, smooth, continued.

*Br. Zool. t. 90. f. 154. Donov. t. 48. Da Costa t. 2. f. 10.*

Shell an inch and a half long, tapering to a small point, pervious, smooth or very minutely striate, with a few circular annulations, truncate at the tip.

591. *D. Gadus*. White, glossy, smooth, slightly curved, inflated near the larger end.

*Montague Brit. Shells. p. 496. tab. 14. f. 7.*

Shell hardly 3 eighths of an inch long, nearly straight, contracted at the larger end, with a rather sharp point.

592. *D. striatulum*. Green tipped with white, slightly curved, with 8 angles, and as many ribs.

*Donovan Brit. Shells. v. tab. 162.*

Shell about an inch and a half long, sometimes grey-white, with the larger aperture angular, and the smaller one very narrow and orbicular.

593. *D. imperforatum*. Whitish, slightly curved, cylindrical, transversely striate, truncate and imperforate at the smaller end.



*Walker. Min. shells. f. 15. Adams Microsc. t. 14. f. 8.*

Shell the eighth of an inch long, white or cinereous, a little contracted at the margin, with the smaller end closed and furnished with a small round protuberance.

594. *D. Trachea*. Ferruginous, cylindrical, curved, with numerous close-set strong annulations, truncate and imperforate at the smaller end.

*Montague Brit. Shells. p. 497. tab. 14. f. 10.*

Shell rather more than the eighth of an inch long, with a small round protuberance at the closed end: differs from the last, in being more curved more strongly and regularly wrinkled, and in having the margin of the aperture not contracted.

595. *D. glabrum*. Glossy-white, cylindrical, curved, quite smooth, closed rounded and slightly margined at one end.

*Montague Brit. Shells p. 497. n. 6.*

Shell hardly a line long, equal in size its whole length, without striæ or wrinkles; aperture orbicular.

## 64. VERMICULUM.

### A. More or less convolute.

596. *V. incurvatum*. White, semitransparent, straight, with 3 close whorls at the smaller end.

*Walker minute Shells f. 11. Adams Microsc. t. 14. f. 7.*

2. With a single whorl at the tip, pervious.

*Walker Minute Shells f. 12. Montague p. 518. S. pervium.*

Shell hardly a line long, resembling *Nautilus semiliteus*, but is quite smooth, cylindrical, without syphon or internal chambers.

597. *V. bicornis*. White, opaque, semilunar, inflated in the middle.

*Walker minute Shells f. 2. 3. Adams Microsc. t. 14. f. 2. 3.*

Shell a line long, tapering to each end.

598. *V. Seminulum*. White, opaque, smooth, oval, compressed, with 3 or 4 whorls.

*Walker Minute Shells f. 1. Linn. Trans. v. t. 1. f. 28-30.*

Shell the tenth of an inch wide, with the whorls more or less orbicular or oval: aperture compressed, semilunar.

599. *V. subrotundum*. White, opaque, suborbicular, sub-compressed, of 3 whorls, the middle-one elevated on the upper-side.

*Walker minute Shells f. 4. Montague p. 521. n. 6.*

Shell half a line wide, smooth, the middle whorl raised above the others on the upper-side, and not visible beneath: aperture angular, with a yellow margin.

600. *V. oblongum*. White, opaque, glossy, oblong-oval, sub-compressed, with a single longitudinal suture on one side.

*Montague Brit. Shells p. 522. tab. 14. f. 9.*

Shell hardly half a line long, with a single longitudinal suture on one side, dividing the shell into two parts, on the other the middle whorl is surrounded by a faint depression: aperture a little produced, oval, with a yellow margin.

### B. Bottle-shaped, not convolute.

601. *V. lacteum*. Oval, thin, pellucid, smooth, with milky veins.

*Walker Minute Shells* f. 5. *Adams Microsc.* t. 14. f. 4.

Shell half a line long, slightly compressed, divided into about 4 departments by the milky lines, with an opaque white border.

602. *V. striatum*. Suboval, glossy white, pellucid, with a slender produced mouth, and longitudinal opaque striæ.

*Walker* f. 6. *Adams Micr.* t. 14. f. 5. *Serpula* Lagena.

Shell not half a line long, shaped like an oil-flask.

603. *V. globosum*. Globular, white, transparent, with the mouth hardly produced.

*Walker Minute Shells* f. 8. *Montague* p. 523.

Shell rather less than the last, from which it differs in being destitute of striæ, and in not having a lengthened mouth.

604. *V. læve*. Bluish-white, transparent like glass, oval, smooth, with a produced mouth.

*Walker min. Shells* f. 9. *Montague* p. 524. n. 11.

Differs from the last, in being of a more oblong shape, of a glass-like transparency, and in having a lengthened mouth.

605. *V. marginatum*. White, transparent, a little compressed, surrounded longitudinally by a raised ridge.

*Walker, min. Shells* f. 7. *Montague* 524. n. 12.

Resembles *V. globosum*, but is rather less, more compressed, and has a raised margin round it longitudinally.

606. *V. squamosum*. White, subglobular, marked with undulate striæ like the scales of a fish: mouth a little produced.

*Montague Brit. Shells* p. 526. tab. 14. f. 2.

Shell resembling *V. striatum*, but instead of being striate longitudinally, is covered with transverse undulations exactly resembling a fishes scales.

607. *V. perlucidum*. White, transparent, subglobular, with a long cylindrical neck, and a small knob at the base, and 6 strong equidistant longitudinal ribs.

*Montague Brit. Shells* p. 525. tab. 14. f. 3.

Shell not the tenth of an inch long, glossy, shaped like a wine-bottle.

608. *V. Urnæ*. White, semitransparent, smooth, urn-shaped, with a conic neck, and slender appendage at the base.

*Montague Brit. Shells* p. 525. tab. 14. f. 1.

Shell hardly a line long, glossy, round with a gradually tapering neck like an urn, and a slender appendage or knob at the base.

## 65. SERPULA.

### A. Spiral.

609. *L. Sprillum*. Glossy-white, pellucid, regular, orbicular, with round gradually decreasing whorls.

*Pultn. in Hutch. Dorset.* p. 52. tab. 19. f. 27.\*

2. With the whorls in a contrary direction.

*Walker minute Shell.* tab. 1. f. 13. 14.

Shell a line in diameter, with 2 or 3 slightly wrinkled whorls, mostly placed laterally and umbilicate in the centre.

610. *S. minuta*. Dirty-white, opaque, regular, orbicular, with rounded whorls in a contrary direction.

*Montague Brit. Shells* p. 505. n. 9.

Shell not more than the thirty-sixth of an inch in diameter, transversely wrinkled, with sometimes a slight ridge along the back.

611. *S. spirorbis*. White, opaque, regular, orbicular: whorls slightly channelled above inwardly, gradually decreasing.

*Br. Zool. t. 91. f. 155. Donovan. t. 9. Da Costa t. 2. f. 11.*

Shell the eighth of an inch wide, smooth or slightly wrinkled, rounded above, flattish underneath, umbilicate in the middle.

612. *S. granulata*. White, opaque, clustered, round, with 3 elevated ribs on the upper side.

*Donovan Brit. Shells. tab. 100.*

Shell about the size of the last, spiral but not quite regular, slightly umbilicate, with two whorls.

613. *S. heterostropha*. Dirty-white, round: whorls with 3 ribs, turning in a contrary direction.

*Montague Brit. Shells p. 503 n. 7.*

Shell resembling the last, but is about half the size, with less eminent ribs, and the whorls are placed in a contrary direction: aperture orbicular.

614. *S. carinata*. White, opaque, regular: the outer whorl with a reticulate ridge at top.

*Montague Br. Shells p. 502. n. 4.*

Shell about half the size of *S. spirorbis*, concave and sometimes perversus in the middle, a little spreading at the base.

615. *S. corrugata*. White, regular, rough with transverse wrinkles, umbilicate.

*Montague Brit. Shells p. 502. n. 5.*

Shell about the eighth of an inch wide, differing from *S. spirorbis* in being stronger, and not exposing so much of the inner whorls.

616. *S. cornea*. Horn-colour, pellucid, regular, rounded, with 3 whorls.

*Adams Linn. Trans. 5. t. 1. f. 33-35.*

617. *S. lucida*. Round, quite smooth, pellucid, glossy, vitreous, with the whorls turning in a contrary direction.

*Adams Linn. Trans. 5. t. 1. f. 31. 32.*

Shell half a line in diameter, with the whorls sometimes unconnected: aperture often projecting upwards.

618. *S. reversa*. White, subcylindrical, rugged, spirally or irregularly twisted: aperture turning in a reversed direction.

*Montague Brit. Shells p. 508, n. 11.*

Shell the tenth of an inch wide, transversely wrinkled, sometimes pretty regularly spiral, sometimes variously twisted, with the aperture always reversed. Probably only a variety of *S. vermicularis*, for the inhabitant is the same.

#### B. Contorted, irregular.

619. *S. vermicularis*. White, cylindrical, tapering, rugged, variously curved and twisted.

*Br. Zool. t. 91. f. 158. Da Costa p. 18. tab. 5. f. 2.*

Shell from the size of a large thread to that of a Swan's quill, frequently clustered, totally affixed to some other substance, never carinate along the back. Inhabitant with branched fringed tenta-

cula, spotted with red, and furnished with a double trumpet-shaped proboscis.

620. *S. triquetra*. White or reddish, rugged, creeping, variously twisted, triangular.

*Br. Zool. t. 91. f. 157. Donovan t. 95. Sow. Misc. t. 31.*

Shell resembling the last, but is carinate along the back, and has generally the base a little spread, giving it a triangular appearance. Inhabitant with double feathered tentacula, and a single trumpet-shaped proboscis.

621. *S. tubularia*. White, round, taper, slightly rugged, affixed and convolute at the smaller end.

*Montague Brit. Shells p. 513. n. 14.*

Shell 4 or 5 inches long, 2 tenths of an inch wide at the larger end, with an orbicular aperture, detached and ascending at the larger end, affixed and flexuous or convolute at the smaller. Inhabitant with double yellowish feathered tentacula annulate with pink, without the trumpet-like proboscis; head long, white, barred with pink and green.

## 66. TEREDO. Ship-worm.

622. *T. navalis*. Extremely thin and brittle, cylindrical, taper, smooth.

*Donovan tab. 145. Philos. Transact. 1806. t. 12. 13.*

Shell 4-6 inches long, whitish, a little flexuous, more or less obtuse and strong at the tip, finely striate longitudinally, with internal plates contracting the part to a small orifice: aperture orbicular.

## 67. SABELLA.

623. *S. alveolata*. With numerous parallel tubes cemented together, with their mouths somewhat funnel-form.

*Donovan t. 139. Br. Zool. t. 92. f. 162. Ellis Corall. p. 90. tab. 35.*

Tubes nearly straight, 2 or 3 inches long, forming large masses, composed of sand and fine fragments of shells, with their apertures dilated, resembling a piece of honey-comb.

624. *S. Penicillus*. Brown, cylindrical, taper, with an interior smooth coriaceous subpellucid coat.

*Sowerby Miscel. t. 12. Ellis Corall. p. 92. t. 84.*

Tube solitary, 6 or 7 inches long, nearly straight, small and flexuous at the smaller end, sometimes faintly wrinkled; the outer-coat composed of the finest particles of sand and earth agglutinated: aperture a quarter of an inch wide.

625. *S. granulata*. Straight, thin, brittle, tapering, without internal coat.

*Donovan t. 233. Br. Zool. t. 92. f. 163.*

Tube solitary, brownish, 2 inches or more long, 3 eighths of an inch wide at the larger end, tapering to about half as much at the smaller, composed of fine agglutinated sand.

626. *S. Chrysodon*. Cylindrical, papyraceous, nearly of equal size throughout, straight, surrounded with branched fibres at the mouth.

*Pall. Mise. Zool. t. 9. f. 14-16. Montague p. 546. n. 4.*

Tube solitary, about the size of a goose-quill, composed of sand, fragments of shells, or small flat pieces of stone closely cemented on a tubular membrane: aperture furnished with numerous long fibres,



projecting in a somewhat funnel-shaped manner, but a little compressed sideways

627. *S. conchilega*. Thin, brittle, usually attached its whole length in a serpentine manner on old bivalve shells.

*Brit. Zool. n. 161. tab. 26. lower figure.*

Shell composed of large fragments of shells, and very little sand cemented on a thin membrane, 4 or 5 inches long, often interwoven together: differs from the last, in being attached, in its larger component parts, and in wanting the funnel-shaped fibrous mouth.

628. *S. lumbricalis*. Coarse, attached, variously twisted and entwined, composed of coarse sand with fragments of shells cemented together.

*Montague Brit. Shells. p. 549. n. 6.*

Shell with a strong tube, 2 or 3 inches long, a quarter wide, strongly fixed to stones and other bodies. *Inhabitant* with a rather spreading proboscis, fringed round the edge with bristles: mouth with 4 long bristles, and intermediate shorter-ones: head with numerous capillary red tentacula on the back part.

629. *S. cirrata*. Thick, brittle, a little tapering, composed of sand mixed together and slightly cemented.

*Montague Brit. Shells p. 550. n. 7.*

Shell 6 or 7 inches long, soft when moist, crumbling when dry. *Inhabitant* red, annulate, round, with triple lateral fascicles.

630. *S. arenaria*. Cylindrical, equal in size at both ends, very brittle, composed of sand slightly cemented without internal membrane.

*Montague Brit. Shells. p. 552. n. 8.*

Shell about the size of a raven's quill: resembles *S. granulata*, but is less, of equal thickness throughout, and has no internal membrane.

631. *S. subcylindrica*. Subcylindrical, slender, brittle, composed of fine sand and minute particles of broken shells, cemented on a fine membrane, adhering by their flat sides.

Shell about 3 inches long, the tenth of an inch wide, of nearly the same size throughout.

632. *S. setiformis*. Slender, tapering, composed of very fine fragments of shells and stones, placed obliquely and imbricate over each other.

2. Fragments not imbricate, with sometimes a lateral branch near the smaller end.

*Montague Brit. Shells p. 553. n. 10.*

Shell 3 or 4 inches long, double the size of a hog's bristle, tapering to half the size at the lower-end.

633. *S. curta*. Short, a little taper, affixed by the smaller end, composed of sand and minute fragments of shells cemented on a tough membrane.

*Montague Brit. Shells p. 554. n. 11.*

Shell sometimes formed of sand only, hardly half an inch long, the size of a crow's quill, generally naked at the lower-end for half its length, and fixed by its flexible membrane.

634. *S. compressa*. Short, broad, very flat, composed of large fragments of flat bivalve shells with their convex sides upwards.

*Montague Brit. Shells p. 555. n. 12.*

Shell about an inch and a half long, formed of 5 or 6 large fragments of shells with their concave sides placed downwards, leaving a narrow opening at the ends of each.

## ORDER IV. ZOOPHYTA.

### 68. MADREPORA. Madrepora.

635. *M. verrucaria*. Star single, semiorbicular, sessile, with a convex disk full of tubular pores and radiate round the border.

*Solander and Ellis Zooph. p. 137. n. 13. Ginan. Adr. 10. t. 4. f. 13.*

Size of a split pea, white or yellowish, with aggregate tubes on the disk like the florets of a composite flower, and a flattened striate border like the rays of these flowers. It appears an intermediate species between the Madrepora, Tubipore, and Millepore.

636. *M. musicalis*. Aggregate, cylindrical, distant, striate, united by numerous transverse partitions.

*Borlase Cornwall t. 27. f. 7. Phil. Trans. 53. t. 20. f. 14.*

Sometimes cast on the Irish coast, and is often found petrified: corals nearly straight, from an inch to 2 long, white, stellate and flat at top.

### 69. MILLEPORA. Millepore.

637. *M. cervicornis*. Somewhat compressed, forked, with cells on both sides, and rather prominent tubular florets.

*Borlase Cornw. t. 24. f. 7. Mars. Mar. t. 32. f. 152. 153.*

Coral 5 or 6 inches high, reddish or yellowish-brown, whitish within, appearing as if covered with a varnish, branched like the horns of a stag; some of the pores divided at the base.

638. *M. Skenel*. Flat, slightly branched, with cells on both sides disposed in alternate rows: cells turbinate, with a gaping mouth, and covered with a helmet; the under-lip with a small tooth.

*Solander and Ellis Zooph. p. 135. n. 9.*

Found adhering to rocks near Aberdeen, of a bright shining white colour, and appearing as if covered with a silver varnish.

639. *M. compressa*. Compressed, branched, more or less truncate: pores every where a little prominent and rough.

*Sowerby's British Miscellany i. p. 83. tab. 41.*

Coral about 2 inches high, reddish-grey, with distant branches.

640. *M. lichenoides*. Caulescent, decumbent, with waved bifariously forked branches above with the pores a little prominent, striate beneath.

*Ellis Corall. p. 95. t. 35. f. B. b. Nat. Miscell. t. 416.*

Coral 2 or 3 inches long, milk-white, very brittle, with obtuse denticulate branches.

641. *M. fascialis*. Membranaceous, flat, narrow, branched, flexuous, with pores on both sides.

*Ellis Corall. p. 72. t. 30. f. B. b. Borl. Cornw. t. 24. f. 6.*

Coral about 6 inches in diameter, growing in irregular masses:

branches flat, narrow, irregularly subdivided, coalescing, twisting, and branching out again, leaving hollow spaces between them.

642. *M. foliacea*. Folioseous, flexuous, uniting here and there at the extremities, and covered with hardly visible pores on both sides.

*Ellis. Corallines*: p. 71. tab. 30. f. a. A. B. C.

From 3 inches to a foot long; white, stony.

643. *M. cellulosa*. Membranaceous, reticulate, funnel-form, irregularly waved and plaited on the margin, with numerous pores on one side.

*Ellis. Corall.* p. 72. t. 25. f. d. D. F. *Nat. Miscell.* t. 169.

About 3 inches high, solid, brittle, white or yellowish-grey, resembling a piece of lace, consisting of a flat undulating membrane covered with large regular oval perforations on one side, quite smooth on the under-part between the openings; sometimes disposed in a cup-shaped form; at other times running into loose folds with a waved margin, like a ruffle.

644. *M. polymorpha*. Crustaceous, solid, irregularly shaped, but generally branched and tubercled, with pores not visible to the naked eye.

*Ellis. Corall.* p. 76. t. 27. C. *Blackw. Herb.* t. 345.

Coral from 1 to 3 inches high, pure white, red, yellowish, greenish or grey; sometimes shaped like the kernel of a walnut; often in large compressed masses; sometimes like a small bunch of grapes; but most frequently in short irregular ramifications of a chalky tubercled appearance and stony substance. It is the common coral of the shops.

645. *M. Alga*. Consisting of very thin and brittle semicircular plates, disposed horizontally.

*Solander and Ellis Zooph.* p. 131. n. 3. tab. 23. f. 10-12.

Found on the Cornish coast, covering the *M. polymorpha*, and is either red, purplish, yellow, or whitish; extremely brittle and thin, with semicircular plates of various sizes constantly growing horizontally, with their margins bending over, making them convex on the upper-side and concave underneath.

*M. tubulosa*. Crustaceous, parasitic, pale purple, with tubular pores disposed in transverse rows or whorls:

*Ellis Corall.* p. 74. n. 6. tab. 27. e. E.

*Tabipora serpens*, *Gmel.* 3754. *Turt.* iv. t. 614.

Found enveloping the stems of the *Sertularia falcata*: tubes erect or a little declining, minute, disposed in rows over each other.

647. *M. liliacea*. Creeping, prostrate, in obtuse linear divisions, with tubular pores on the upper-surface disposed in transverse rows.

*Mars. Hist. Mar.* p. 153. tab. 34. f. 168. n. 4. 6.

Somewhat resembles the last, but is white.

## 70. CELLEPORA. Cellepore.

648. *C. spinosa*. Parasitical, spongy, rough, consisting of globular cells armed at the mouth with a spinous tooth or two.

*Ellis Corallines* p. 72. tab. 30. f. d. D.

Found incrusting many of the *Sertulariæ* and *Fuci*; cells minute globular, open at top, guarded round the mouth with spines.

649. *C. pumicosa*. Parasitical, very brittle, consisting of prominent cells unarmed at the mouth.

*Ellis Corallines* p. 75. tab. 27. f. f. F.

Resembles the last, but is more brittle, less globular, and the mouths of the cells are not invested with spines.

## 71. ISIS. Coral.

650. *I. Entrocha*. Stem testaceous, cylindrical, with orbicular perforated joints, and whorled forked branches.

*Encyclop. Perthensis* tab. 137. fig. 22.

Most frequently found petrified. Stem about the thickness of a finger, with crowded flat orbicular joints perforated in the centre; the perforation pentangular, with the disk faintly striate from the centre: outer-bark or flesh unequal, and surrounded with a row of tubercles: branches thin, forked, continued and not jointed. It is probable therefore, that those fossile bodies called *Entrochi*, are petrified specimens of this coral.

## 72. GORGONIA. Sea-fan.

651. *G. Placomus*. Branching both ways, with flexuous rarely anastomosing branches covered with conic florets.

*Ellis Coral* p. 67. t. 27. f. A. *Borlase Cornw.* t. 24. f. 1.

Coral erect, 2 feet high or more, woody, yellow, red or grey: branches flattish, bending irregularly towards each other, and rarely uniting: florets wart-like, surrounded at the top with small spines.

652. *G. viminalis*. Slender, branched: florets seated all round the stem, each with a large valve and several smaller-ones.

*Sow. Miscell.* t. 40. *Soland. and Ell. Zooph.* t. 12. f. 1.

Coral a foot high, with a yellow bark and black horny bone: branches long, slender: florets white, a little prominent, with 8 claws.

653. *G. verrucosa*. Bifurcously branched, with round flexuous branches, and a whitish calcarious bark covered with whitish prominent florets.

*Philosop. Transact.* 44. p. 51. t. 20. and 50. t. 34. f. 19. a.

Coral a foot and a half high or more, fan-shaped, dirty white or grey when dried: bone of a substance between wood or horn.

654. *G. Anceps*. Slightly branched, with flat stem and branches, each with a row of florets along both the margins.

*Ellis Coral* p. 68. tab. 27. f. g. n. 2.

Coral nearly 2 feet high, of a fine violet-colour when recent, yellowish or whitish when dry: bone roundish, small at the ends, of a horny or leathery texture.

655. *G. Flabellum*. Reticulate, with the branches compressed on the inner-side: back yellow or purplish: bone black, horny and slightly striate on the larger branches.

Venus's Fan. *Ellis Coral* p. 61. tab. 26. A.

Grows sometimes to several feet high and expands into a large surface, fleshy, horny, black, clothed when fresh with a whitish or grey bark: pores irregularly placed, but generally in the form of a quincunx; trunk and branches pinnate, and by means of the smaller



branches blending together, forming an elegant kind of net-work : polypes with 8 claws.

73. ALCYONIUM.

656. *A. digitatum*. Without stem, oblong, lobed, of a coriaceous wrinkled substance, covered with minute papillæ.

Dead man's hand. *Ellis Coral. p. 83. t. 32. f. a. A. A. 2.*

Of a tough fleshy substance, divided into 2 or 3 obtuse lobes, pale reddish-grey without, whitish within, and covered with stellate warts, each protruding an 8-armed polype.

657. *A. Schlosseri*. Roundish, fleshy, livid, covered with obtusely-rayed yellow stars; the rays with each a single perforation towards the end.

*Borlase Cornw. p. 254. tab. 25. f. 1. 2.*

On the stems of Fuci: brown or greyish: rays much rounded, 5-12 on each star which is perforated at the base.

658. *A. Borlasii*. Spread, fleshy, dark green, covered with obtusely rayed yellow stars; the rays with each a double perforation near the end.

*Borlase Cornw. p. 254. tab. 25. f. 3. 4.*

Found coating rocks from 6 inches to 2 feet in extent, with about 10 rays in each star which are oblong, with a perforation near the end, and a smaller one beneath it; centre of the star perforate.

659. *A. constellatum*. Spread, fleshy, reddish-brown, covered with acutely rayed stars, imperforate at the ends or centre.

*Borl. Cornw. p. 254. tab. 25. f. 5. 6.*

Resembles the last, except that the rays are sharp-pointed, unequal, and without perforation.

660. *A. Bursa*. Subglobular, hollow, pulpy, green, with very thickset hyaline papillæ.

Sea purse. *Mars. Hist. Mar. p. 80. t. 30. n. 69.*

About the size of a small apple, soft, coriaceous.

661. *A. Ficas*. Lobed like a pair of lungs, fleshy, dark olive or livid, covered with small 6-rayed stars, within full of small yellow particles like the inside of a fig.

Sea-fig, Sea lungs. *Ellis Coral. p. 82. t. 17. f. b. B.*

Rather compressed, full of clavate vesicles within filled with a yellow fluid.

662. *A. gelatinosum*. Gelatinous, yellowish, irregularly formed.

Padding-weed. *Ellis Coral p. 87. tab. 31. f. D.*

Adhering to marine substances, roundish or branched.

663. *A. arenosum*. Crustaceous, Shaped like a horses hoof, pale yellowish-brown, consisting of agglutinated sand.

*Ellis Coral. p. 74. t. 25. f. c. Nat. Miscell. t. 272.*

Flustra arenosa. *Linn. Trans. v. p. 230. tab. 10.*

Adhering to fuci and shells, covered with small pores disposed in a quincunx, and is friable when dry.

664. *A. conglomeratum*. Gelatinous, convex, with conglomerate finger-like divisions, and toothless terminal mouths.

*Gartn. Pall. spic. Zool. 16. p. 39. tab. 4. f. 6.*

On the Cornish coasts, whitish, with a central funnel-form cavity, and globular eggs.

665. *A. ascidioides*. Crustaceous, coriaceous, with scattered tubercles, each with 2 slightly toothed mouths.

*Gart. Pall. spic. Zool. 10. p. 40. n. 3. t. 4. f. 7.*

Adhering to the *Fucus palmatus*; pale reddish or saffron-colour, each of the tubercles perforated with a double minute scarlet orifice.

#### 74. SPONGIA. *Sponge*.

666. *Sp. cancellata*. Reticulate, swollen and furnished with protuberant apertures at the junctures.

*Sowerby Brit. Miscellany 1. p. 131. tab. 60.*

Yellowish-brown, cancelled, with reticulate horny fibres.

667. *Sp. coronata*. Minute, consisting of a single rough tube crowned at top with a ray of spines.

*Soland. and Ellis Zool. p. 190. n. 13. tab. 58. f. 8. 9.*

Pale yellow, with a bright pearl-colour crown, hollow and open at top, and when magnified appears as if covered with small rising points.

668. *Sp. oculata*. Porous, soft, much branched; the branches a little compressed, erect, and often uniting together.

*Ellis Coral. p. 80. tab. 32. f. F. f.*

Yellowish, with very fine tender transparent ramifications which frequently inosculate, and are covered with minute pores: from 5 to 10 inches high.

669. *Sp. tomentosa*. Porous, irregularly formed, brittle, soft, downy, composed of minute spiculae crossing each other.

*Ellis Coral. p. 80. tab. 16. f. d. d. 1. D. 1.*

When fresh of a bright orange colour and full of gelatinous flesh, when dry whitish and light, and if broken resembles the crumb of bread; if rubbed on the hand it stings and raises blisters like Cowhage.

670. *Sp. compacta*. Tubular, branched, compact, brittle, composed of minute spiculae crossing each other.

*Sowerby Brit. Miscell. p. 85. tab. 42.*

Resembles the last, but is of a greyish cast, more branched; with distinct prominent tubes, each ending in an opening.

671. *Sp. pulchella*. Smooth, soft to the touch, generally compressed and broad, composed of very fine reticulations.

*Sowerby British Miscellany p. 87. tab. 43.*

*Sponge* very irregular in shape, sometimes rather fan-shaped, sometimes palmate or digitate, pale brown, yellowish or reddish brown, without visible pores or tubes.

672. *Sp. stuposa*. Soft like tow, covered with fine pointed hairs, with cylindrical branches.

*Philosoph. Transact. 55. p. 288. tab. 10. f. C.*

About 3 inches high, of a pale yellow colour.

673. *Sp. cristata*. Flat, erect, soft, with rows of small rather projecting pores along the top.

*Philos. Transact. 55. p. 288. tab. 11. f. G.*

About 2 or 3 inches high, yellowish, growing something in the shape of a Cock's comb.

674. *Sp. palmata*. Palmate, with finger-like divisions round the surface, wooly: pores a little prominent, irregularly disposed.

*Soland. and Ellis Zooph. p. 189. n. 10. tab. 58. f. 6.*

Reddish inclining to yellow, soft and woolly, with the divisions a little subdivided at the top.

675. *Sp. botryoides*. Very tender, branched, consisting of clusters of oval tubercles open at the top.

*Soland. and Ellis Zooph. p. 190. n. 12. t. 58. f. 1-4.*

Bright shining white, in irregular masses, like bunches of grapes; the surface when highly magnified, appearing as if covered with masses of 3-rayed spinous stars.

676. *Sp. lacustris*. Uniform, creeping, brittle, with erect cylindrical obtuse branches.

*Spongia ramosa fluvialis. Ray Hist. 81.*

At the bottom of lakes, covered with scattered pores, in which are sometimes found, during the Autumn, small shining bluish globules, about the size of the seeds of thyme, which glitter in the flame of a candle. These are probably extraneous bodies.

### 75. FLUSTRA. *Hornwrack. Sea Mat.*

677. *Fl. foliacea*. Foliaceous, branched, with rounded wedge-shaped divisions.

*Ellis Corall. p. 70. t. 29. fig. a. A-E.*

Adhering to shells, about 6 inches high, pale yellowish, porous on both surfaces, with rounded 4-toothed cells.

678. *Fl. truncata*. Foliaceous, branched, with linear truncate subdivisions.

*Ellis Corall. p. 69. tab. 28. fig. a. A. B.*

About 5 inches long, pale yellowish-brown, with slender branches, porous both sides, with oblong-square cells.

679. *Fl. pilosa*. Foliaceous, variously branching, with a setaceous tooth on the lower part of each pore.

*Ellis Corallines p. 73. tab. 31.*

Found incrusting various Fuci and Sertulariæ, whitish, porous both sides, with round cells.

680. *Fl. chartacea*. Papyraceous, branched, with cells on both sides; the tops of the branches truncate like the edge of an axe.

*Solander and Ellis Zoophytes p. 13. n. 4.*

Thin, semitransparent, like fine paper, very light straw-colour; the tops of the branches sometimes digitated, sometimes irregularly divided: cells oblong-square, swelling out a little in the middle each side, defended by a helmet-like figure.

681. *Fl. carbacea*. Foliaceous, subdivided, with the cells in single layers.

*Soland. and Ellis Zooph. p. 14. n. 5. tab. 3. f. 6. 7.*

Thin like a piece of lawn, yellowish-brown: cells large, ovate above truncate beneath, the walls surrounding them appearing to be formed of a slender tube.

682. *Fl. dentata*. Foliaceous, parasitical, with shining oval cells in single layers, each with an inclined toothed mouth.

*Ellis Corallines p. 73. tab. 29. f. D. D 1, E.*

Adhering to Fuci and other marine substances, white, semitransparent, with 4-toothed cells.

683. *Fl. avicularis*. Foliateous, with fascicled palmate truncate branches, smooth on one side, with opaque beaked capsules near the edge formed like a parrot's beak: cells on one side, armed with branched spines.

*Sowerby's British Miscellany* ii. p. 21. tab. 71.

Blackish, about 2 inches across, forming a spherical mass: cells alternate, resembling articulations, surrounded with long spines: capsules sessile.

684. *Fl. membranacea*. Parasitical, membranaceous, with oblong-quadrangular cells pointed at the upper projecting angles.

*Mull. Zool. Dan.* 1. p. 163. tab. 117. f. 1. 2.

Adhering to Fuci and shells, very thin, grey or whitish.

## 76. TUBULARIA.

685. *T. indivisa*. Clustered, with undivided jointed stems tapering to the base.

*Ellis Corallines* p. 31. tab. 16. f. c.

Stems 2 or 3 inches high, adhering to rocks and shells, straw-colour, interwoven with each other, with very narrow joints barely twisted; bodies of the polypes pale red, their heads bright crimson.

686. *T. muscoides*. Clustered, simple or slightly forked, here and there wrinkled their whole length.

*Ellis Corallines* p. 30. tab. 16. f. b.

Resembles the last, but is about half the size and height and of equal thickness throughout, is sometimes simply branched, with the joints twisted here and there, and the polypes are rich crimson.

687. *T. ramosa*. Solitary, much branched, equal, with the branches twisted at the forks.

*Ellis Corallines* p. 31. tab. 16. f. a. t. 17. f. a. A.

Stems 3 or 4 inches high, repeatedly forked, pale grey with crimson heads, very slender, twisted at the insertion of the branches, and a little below them.

688. *T. fistulosa*. Repeatedly forked, with short cylindrical joints covered with lozenge-shaped impressed cells.

*Ellis Corallines* p. 46. tab. 23.

About 3 inches high, and about as thick as a piece of whipcord: stems ending in slender membranaceous tubes, the terminal branches clavate.

689. *T. Coryna*. Slightly branched, filiform, papyraceous, jointed, with ovate pointed capsules perforated with a dilatable mouth, and terminated by cylindrical armed tentacula.

*Gartn. Pall. Spicil. Zool.* 10. p. 40. tab. 4. f. 8.

Adhering without tubular radicles to Fuci and Sertulariæ, sandy or deep red, narrow at the base, without head or retractile tentacula: capsules perforated over the whole surface, protruding the hyaline tentacula globular at the end, and producing eggs at the base.

690. *A. affinis*. Simple, slightly annulate, soft, with



tapering tentacula surrounding the retractile papillary mouth.

Pall. spicil. Zool. 10. p. 36. 41. tab. 4. f. 9.

Resembles the last: capsules with muricate tentacula, producing eggs at the base.

691. *T. campanulata*. Tentacula disposed in the form of a crescent: body projecting beyond the sheath: orifices of the sheath annulate: tube simple or palmate.

Nat. Miscell. t. 354. Adams microsc. t. 22. f. 32.

In stagnant waters, soft, transparent, inclosed in a bell-shaped case, the plume with about 60 tentacula.

692. *T. flabelliformis*. With fascicled parallel tubes disposed in separate radiate bundles.

Adams Linn. Transact. v. p. 12. t. 2. f. 12-14.

On the *Conserva rubra*, minute: stem cylindrical, a little dilated at the base, and becoming suddenly dilated into a compressed fan-shaped form, from which proceed 8 rays, each composed of several equal very minute cylindrical tubes.

## 77. CORALLINA. Coralline.

693. *C. auriculariæformis*. Stemless, spreading like a parasitical fungus, lobed, imbricate.

Sowerby Brit. Miscellany 1. p. 119. tab. 56.

Found sometimes incrusting other corallines, yellowish or reddish, in somewhat circular patches, smooth on both surfaces, with minute cells in transverse rows.

694. *C. squamata*. Trichotomous; the joints of the stem roundly compressed and wedge-shaped, those of the branches flatly compressed, terminal-ones flattish and sharply 2-edged.

Ellis Corallines p. 49. tab. 24. n. 4. f. c. c.

On the Cornish coast, of a sea-green colour.

695. *C. elongata*. Trichotomous; the joints of the stem roundish-wedge-shaped, those of the branches cylindrical, terminal-ones rather obtuse and some of them capitate.

Ellis Corallines p. 49. tab. 24. n. 3.

Coral reddish or purplish, very slender, drooping, longer and smaller than *C. officinalis*.

696. *C. officinalis*. Doubly pinnate or trichotomous; joints of the stem somewhat wedge-shaped or turbinate, those of the branches round, some of the terminal-ones capitate.

Ellis Corallines p. 48. tab. 24. f. 2. A. Nat. Misc. t. 158.

Coral growing in clustered tufts, 2-5 inches long, about the thickness of a large thread, erect, white, greenish, yellowish, or purple, sometimes a mixture of all the colours.

697. *C. rubens*. Dichotomous, filiform, flat-topped the joints of the stem round, those supporting the divisions clavate; some of the lower-ones 2-horned.

Ellis Corallines p. 50. tab. 24. n. 5. f. c. E.

About 2 inches long, red: terminal-joints notched.

698. *C. cristata*. Dichotomous, filiform, in crested tufts, with roundish joints, those supporting the last subdivisions clavate.

*Ellis Corallines p. 51. n. 7. tab. 24. f. f. F.*

About one or two inches long, disposed in crest-like clusters, red, purple, white, green or yellowish; the lower-joints not horned, terminal-ones simple.

699. *C. spermophoros*. Dichotomous, filiform, with roundish joints; those supporting the 2 last subdivisions clavate, terminal-ones long, setaceous, in pairs.

*Ellis Corallines p. 51. n. 8. tab. 24. f. g. G.*

About an inch long, milk-white, and more loose and spread than the last.

700. *C. corniculata*. Dichotomous, with the joints of the stem and branches 2-horned, those of the subdivisions roundish.

*Ellis Corallines p. 50. n. 6. tab. 24. f. d. D.*

Growing on Fuci, white, an inch or two high.

701. *C. globifera*. Simple, or slightly forked, with cylindrical joints proceeding from a spherical globule.

*Ellis Corallines p. 51. n. 9. tab. 24. f. h. H.*

Very small, attached to Fuci, and may probably be the beginning of *C. spermophoros*.

## 78. SERTULARIA.

- A. Stem horny, tubular, fixed by the base, beset with cup-shaped denticles, and furnished with vesicles or ovaries, containing polypes, eggs, or the living young.

702. *S. rosacca*. Panicked, with alternate branches: denticles opposite, tubular, truncate: vesicles crowned with spines.

*Ellis Corallines p. 8. tab. 4. Phil. Trans. 48. t. 23. f. 5.*

White, tender, growing on shells or creeping up other corallines; vesicles resembling the blossom of the pomegranate.

703. *S. pumila*. Branches scattered: denticles opposite, seated on oval joints, pointed, recurved: vesicles obovate.

*Ellis Corall. p. 9. t. 5. n. 8. f. a. A. Phil. Trans. 48. t. 23. f. 6. F. F.*

On the leaves of Fuci, particularly the *F. serratus*.

704. *S. operculata*. Branches alternate: denticles opposite, pointed, nearly erect, with 2 bristles each side: vesicles obovate, covered with a lid.

*Ellis Corallines p. 8. tab. 3. n. 6. f. b. B.*

On Fuci and shells, about 5 inches long.

705. *S. tamarisca*. Branches alternate: denticles opposite, truncate and undulate at top: vesicles obovate, truncate, with a small tooth each side and a short tube in the centre.

*Ellis Corallines p. 4. tab. 1. n. 1. f. a. A.*

Stem nearly 4 inches long: denticles slightly 3-toothed.

706. *S. abietina*. Branches alternate: denticles nearly opposite, oval, swelling at the base on the upper-side: vesicles oval.

*Ellis Corallines p. 4. tab. 1. n. 2. f. b. B.*

About 5 inches long, and often covered with small *Serpulæ*: branches often alternately pinnate.

707. *S. nigra*. Blackish, pinnate: denticles nearly oppo-

site, minute: vesicles large, all on one side, square-oval.

*Pall. el. Zooph. p. 136. n. 83.*

On the Cornish coast, about 4 inches long.

708. *S. fuscescens*. Grey-brown, pinnate: denticles nearly opposite, tubular: vesicles numerous, minute, all on one side, with 3 tubercles on each.

*Baster op. subs. 1. tab. 1. fig. 6.*

On the Cornish-coast; resembles the last.

709. *S. cupressina*. Panicked, very long: denticles nearly opposite, obliquely truncate and a little pointed: vesicles obovate, toothed each side.

*Ellis Corallines p. 7. tab. 3. n. 5. fig. a. A.*

Resembles *S. tamarisca*, but the denticles are obliquely truncate, pointed, and not toothed or undulate on the top; and the central tube is shorter.

710. *S. argentea*. Panicked, with alternate branches: denticles nearly opposite, pointed: vesicles oval.

*Ellis Corallines p. 6. tab. 2. n. 4. f. c. C.*

Resembles *S. pumila*, but the denticles are not recurved, or seated on oval joints, and the vesicles are distinctly oval.

711. *S. rugosa*. Branches scattered: denticles alternate, obsolete: vesicles much wrinkled, 3-toothed at top.

*Ellis Corallines p. 26. tab. 15. n. 23. f. a. A.*

On the *Flustra foliacea*, and other Corallines; stem twisted.

712. *S. halecina*. Erect, alternately branched: denticles alternate, tubular, jointed: vesicles oval, united along the side to a small tubular stalk; stem composed of united tubes.

*Ellis Corallines p. 17. t. 10. Phil. Trans. 48. t. 17. f. E. F. G.*

Stem growing to 6 or 8 inches high, stiff; brittle when dry, consisting of numerous small tubes growing nearly parallel to each other: denticles of two joints, cylindrical: vesicles oblong-oval, with a short tube at the top.

713. *S. Thuja*. Stem zigzag, naked at bottom, with a tuft of dichotomous branches at top: denticles alternate, on each side and closely appressed to the branches: vesicles obovate, with a rim at top.

*Ellis Corallines p. 10. tab. 5. n. 9. f. b. B.*

Stem erect, stiff, knotty, with a close-set panicle at top: vesicles at the bottom of the branches, furnished with a lid.

714. *S. Myriophyllum*. Branches leaning one way: stem gibbous on the side opposite the branches: denticles appressed to the stem, all on the underside of the branches, truncate.

*Ellis Coral. p. 14. tab. 8. Soland. and Ellis Zooph. p. 44. n. 13.*

Stem about 3 inches long, pale horny, consisting of numerous united tubes, channelled and indented, with large protuberances opposite some of the branches: denticles seated in a socket, with a short spine on the lower part.

715. *S. falcata*. Stem flexuous, with alternate pinnate branches: denticles all on one side, imbricate, truncate: vesicles oblong-oval.

*Ellis Corall. p. 12. tab. 7. n. 11. f. a. A.*

About 3 inches long: denticles in a single row.

716. *S. Pluma*. Branches alternate, pinnate, lanceolate: denticles all on one side, imbricate, campanulate, toothed at top: vesicles gibbous, toothed on the margin.

*Ellis Corallines p. 13. tab. 7. n. 12. f. b. B.*

Climbing up Fuci: branches jointed, twisted: denticles supported in front by a small hollow spine: vesicles with 4 or 5 oblique crested ribs.

717. *S. antennina*. Stems simple or slightly branched: denticles whorled, in fours, setaceous: vesicles obliquely truncate, in whorls.

*Ellis Coral. p. 15. tab. 9. a. A.*

Near a foot high, yellow, with very fine capillary yellowish radi-  
cles: stems furrounded at the joints with whorls of small incurved  
bristles, on the upper-sides of which are rows of minute cap-  
shaped denticles: vesicles on short pedicels, obliquely open to-  
wards the stem, and placed round it at the insertion of the  
branches.

718. *S. verticillata*. Branches alternate: denticles cam-  
panulate, toothed round the rim, on long twisted  
pedicels, and placed in fours round the stem:  
vesicles oval, ending in a tube.

*Ellis Corallines p. 23. tab. 13. n. 10. f. a. A.*

Stem ribbed, loosely branched: vesicles nearly erect, glutinous.

719. *S. volubilis*. Branches alternate: denticles cam-  
panulate, toothed round the rim, on long twisted  
pedicels, placed alternately: vesicles oval.

*Ellis t. 14. a. A. Solander and Ellis n. 22. t. 4. f. c. E. f. F.*

Whitish, minute, climbing up other corallines; resembles the  
last, but the denticles are not placed in whorls, and the pedicels  
are longer and twisted round the stem: vesicles sometimes  
wrinkled across.

720. *S. Syringa*. Branches filiform, alternate: denti-  
cles cylindrical, obliquely truncate at top, mostly  
alternate, on twisted pedicels shorter than the  
denticles.

*Ellis Corall. p. 27. tab. 14. n. 21. b. B.*

On shells, or creeping up other corallines: vesicles unknown.

721. *S. Cuscuta*. Branches opposite, simple: denticles  
obsolete: vesicles oval, axillary.

*Ellis Corall. p. 28. t. 14. n. 26. f. c. C.*

Climbing up Fuci: vesicles small, axillary.

722. *S. pustulosa*. Stem with alternate dichotomous  
branches, covered with prominent pustules with each  
a point in the middle.

*Ellis Corallines p. 54. tab. 27. fig. b. B.*

Stem rising into alternate forked branches, with small pustule-  
like denticles towards the tips, having a circular rim with a point  
in the middle of each.

723. *S. frutescens*. Branches alternate, pinnate: denti-  
cles cylindrical, campanulate, placed in a single row  
on the inside of the branches.

*Soland. and Ellis Zooph. p. 55. n. 29. t. 6. f. a. A.*



Stem hard, blackish, composed of small united tubes: *branches* lanceolate, brown: *denticles* truncate, slightly pointed on one side.

724. *S. Filicula*. Stem zigzag, with alternate branches: *denticles* opposite, ovate, with a single erect one at the junctures of the branches: *vesicles* obovate, with a tube in the centre.

Soland. and Ellis Zooph. p. 57. n. 32. tab. 6. f. c. C.

Very tender, much branched; the branches nearly horizontal.

725. *S. Evansii*. Branches opposite: *denticles* short, opposite: *vesicles* lobed, arising from opposite branches, which proceed from the creeping adhering tube.

Soland. and Ellis Zooph. p. 58. n. 44.

Creeping on Fuci, about 2 inches high, very slender, bright yellow: *vesicles* fulvous, with opposite lobes.

726. *S. muricata*. Stem jointed, interwoven at bottom: *denticles* pedicelled, proceeding alternately from the joints: *vesicles* pedicelled, oval, spinous.

Solander and Ellis Zooph. p. 59. n. 36. tab. 7. f. 3. 4.

*Vesicles* full of pointed spines from arched crested ribs.

727. *S. Uva*. Slightly branched, with alternate divisions: *denticles* obsolete: *vesicles* oval, closed, clustered.

Ellis Corallines. p. 27. n. 25. tab. 15. f. c. C.

*Vesicles* transparent, with a white nucleus.

728. *S. lendigera*. Stem and branches jointed: *denticles* cylindrical, truncate, in a single row along the branches and growing gradually less.

Ellis Corallines p. 27. n. 24. tab. 15. f. b. B.

Branches subdivided and irregularly interwoven: *denticles* placed in parallel ranks along the inside of the branches, and growing gradually shorter towards the tops of the joints: *vesicles* unknown.

729. *S. geniculata*. Stem branched, jointed, flexuous: *denticles* twisted, alternate, at the base of the *vesicles*: *vesicles* obovate, with a tube in the centre.

Ellis Corallines p. 22. n. 19. tab. 12. f. b. B.

Creeping up Fuci: *joints* clavate at top.

730. *S. dichotoma*. Stem dichotomous, flexuous, twisted at the joints: *denticles* campanulate, on annulate stalks: *vesicles* obovate, axillary, on twisted pedicels.

Ellis Coral. p. 21. n. 18. tab. 12. f. a. A. c. C.

Near a foot long, tough, pliant, white, but becoming testaceous by age.

731. *S. spinosa*. Branches forked, ending in spinous points: *denticles* distant, on the same side, obsolete: *vesicles* linear-oval.

Ellis Corallines p. 20. n. 17. tab. 11. f. b. d. B. C. D.

Stems composed of interwoven tubular fibres: *branches* flexuous, loose, forked, with pointed tips.

732. *S. pinnata*. Stem simple, lanceolate, pinnate: *denticles* campanulate, all on one side: *vesicles* oval, clustered, with a coronet of tubercles round the mouth.

Ellis. Corallines. p. 19. n. 16. tab. 11. f. a. A.

Stem about 3 inches high, alternately pinnate: denticles near together, semiorbicular.

733. *S. setacea*. Stem simple, oblong, pinnate: denticles obsolete, remote, along the upper-side of the branches: vesicles oblong, axillary.

*Ellis Coral. t. 38. f. 4. Shaw Nat. Miscell. t. 71.*

About half the size of the former: branches a little curved downwards: vesicles erect, tubular, at the angles of the branches.

734. *S. polyzonias*. Stem loosely branched: denticles alternate, ovate-oblong, undulate round the top: vesicles obovate, with concentric wrinkles.

*Ellis Coral. p. 5. n. 3. tab. 2. f. a. A. b. B.*

Stem erect or climbing, 3 or 4 inches long, pale yellow.

735. *S. Lichenastrum*. Stem simple, alternately pinnate: denticles alternate, obtuse, in 2 appressed rows along the stem and branches: vesicles oval, with a lid.

*Ellis. Corall. p. 11. n. 10. t. 6. Soland. and Ellis p. 42. n. 10.*

Stem erect, jointed, compressed: branches alternate, nearly horizontal.

736. *S. imbricata*. Stem slightly branched: denticles obsolete: vesicles oblong, slightly clavate, irregularly imbricate along the branches.

*Adams Linn. Transact. v. p. 11. tab. 2. f. 5-11.*

Stem cylindrical, about 3 inches high: vesicles placed in 2 rows along the smaller branches, but irregularly imbricate towards the tip.

- B. Stem crustaceous, inclining to stony, composed of rows of cellular denticles, without distinct vesicles, in the place of which are small globules. Cellaria.

737. *S. Bursa*. Stem branched, dichotomous: denticles opposite, compressed, truncate, wedge form, with a small clavate tube at top.

*Ellis. Corall. p. 41. tab. 22. n. 8. f. a. A.*

Minute, flexible, transparent, adhering to Fuci: denticles carinate, appearing in pairs like the pods of the Shepherd's purse.

738. *S. lorculata*. Branches erect, dichotomous: denticles opposite, obliquely truncate, nearly obsolete.

*Ellis Corallines p. 40. n. 7. tab. 21. f. b. B.*

Stem much branched: denticles opening obliquely.

739. *S. fastigiata*. Branches erect, forked, flat-topped: denticles alternate, pointed, with their opening on one side.

*Ellis Corallines p. 38. n. 1. tab. 18.*

Denticles with a black spot in the middle of the mouth.

740. *S. avicularia*. Branches forked: denticles pointing one way, with 2 mucronate beak-like appendages: globules sessile, mucronate.

*Ellis Corallines p. 36. n. 2. tab. 20. f. a. A.*

Denticles with 2 projections resembling a bird's beak when open: globules testaceous, with a spine at the base.

741. *S. scruposa*. Branches forked, creeping: denticles alternate, angular, spinous.

*Ellis Corallines* p. 38. n. 4. tab. 20. f. c. C.

Very brittle, linear, pale, with a double row of cells, each with a pointed projecting angle on the out-side and opening obliquely.

742. *S. reptans*. Branches forked, creeping: denticles alternate, with 2 spines at top.

*Ellis Corallines* p. 37. n. 3. tab. 20. f. b. B.

Creeping on other corallines, hardly an inch long, white or greyish: cells-like inverted cones, with oblique mouths.

743. *S. ciliata*. Branches forked, erect: denticles alternate, ciliate round the mouth, funnel-form.

*Ellis Corallines* p. 38. n. 5. tab. 20. f. d. D.

Minute, whitish, with long bristles at the mouth, which is sometimes covered with a concave testaceous lid: globules like a birds head.

744. *S. eburnea*. Branches spreading: denticles alternate, truncate, a little prominent: vesicles oval, with a tubular beak on one side.

*Ellis Corallines* p. 39. n. 6. tab. 21. f. a. A.

About an inch high, white: root consisting of interwoven tubes: denticles cylindrical: vesicles brittle, dotted.

745. *S. cornuta*. Branches alternate: denticles opening one way, a little incurved, truncate, with a long bristle below the mouth of each: vesicles oval.

*Ellis Corallines* p. 42. n. 10. tab. 21. f. c. C.

Hardly 4 inches long, stony, clear white: root consisting of jointed tubes: denticles tapering to the base, a little incurved: vesicles dotted, with a short tubular neck on one side.

746. *S. loricatea*. Branches alternate: denticles opening one way, with a raised margin round the mouth, at the base of which is a short spine.

*Ellis Corallines* p. 42. n. 9. tab. 22. f. b. B.

Denticles like inverted horns placed one over the other, opening on the inside, with a short bristle on the lower-part of the mouth, and another at top in the terminal-ones.

747. *S. anguina*. Stem simple, without denticles, beset with quite simple alternate obtuse clavate tubes opening on one side.

*Ellis Corallines* p. 43. n. 11. tab. 22. f. c. C. D.

Climbing up marine substances, white, soft, flexible, varying in form: tubes testaceous, annulate, jointed in the middle: It appears to connect the Sertulariæ with the genus Hydra.

748. *S. ternata*. Branched, forked, jointed, creeping; joints somewhat top-shaped, angular at their sides, with 3 cells in the front of each.

*Solander and Ellis Zooph.* p. 30. n. 18.

On the shores of Scotland: stony, semitransparent.

## 79. PENNATULA. Sea Pen.

749. *P. phosphorea*. Stem fleshy, with a rough midrib, and imbricate ramifications.

*Phil. Trans.* 53. tab. 19. f. 1-5. *Nat. Miscell.* tab. 39.

About 4 inches long, red, emitting a strong phosphorescent light in the dark: stem villous, with a lanceolate rough midrib, and nearly incumbent rays, the tubes all pointing one way.

750. *P. mirabilis*. Stem filiform, with a smooth midrib,

and lunate denticulate alternate ramifications growing smaller towards the bottom.

*Sowerby Brit. Miscell. i. p. 51. tab. 25.*

Stem long, reddish-grey, ending at top in a bony substance, with very short ramifications.

## 80. HYDRA. *Polype.*

751. *H. viridis.* Green, with about 10 arms shorter than the body.

*Adams and Kænm. Microsc. p. 364. tab. 21. f. 5.*

In stagnant waters and slow streams, generally on the under surface of aquatic plants, appearing like a transparent green jelly when contracted; when expanded it is a linear body, fixed at one end, and surrounded at the other by 8-10 tentacula or arms placed in a circle round the mouth, and gradually producing its young from the sides, which at first seem small protuberances, increasing in length, till they assume the form of the parent, and then dropping off. Like all its tribe, it has the power of reproducing parts which have been destroyed; and if cut or divided in any direction, each separate part will become a perfect polype.

752. *H. grisea.* Yellowish-grey, with about 7 arms longer than the body.

*Adams and Kænm. Microsc. p. 364. tab. 21. f. 6.*

In rivulets and stagnant waters, tapering towards the base, with sometimes 12 arms or tentacula.

753. *H. fusca.* Grey-brown, with about 8 arms, many times as long as the body.

*Adams and Kænm. Microsc. p. 363. tab. 21. f. 7. 8.*

In fresh waters, a little tapering to the base, with very fine setaceous and long tentacula or arms.

## ORDER V. INFUSORIA.

### 81. BRACHIONUS.

754. *Br. urceolaris.* Univalve, bell-shaped, with the shell many-toothed at top, and rounded at the base: tail long, cloven at the end.

*Adams Microsc. p. 568. t. 22. f. 36-38. t. 27. f. 56. 57.*

*Vorticella urceolaris. Donovan Br. Ins. t. 17. f. 1. 2.*

In stagnant waters, appearing to the naked eye as a small white speck: rotatory organ double, which can be protruded or concealed at pleasure.

755. *Br. striatus.* Univalve, with an oval striate shell 6-toothed at top and entire at the base; without tail.

*Adams Microsc. p. 364. tab. 27. fig. 64. 65.*

In salt water, transparent, crystalline, truncate on the fore-part and rounded behind: shell varying in form, with 12 longitudinal ribs.

756. *Br. Tripus.* Bivalve, with the shell unarmed at the top and 3-horned at the base; tail double.

*Adams Microsc. p. 566. tab. 27. f. 59.*

In waters which have been kept some time, very transparent and nearly triangular, with a double rotatory organ.



757. *Br. uncinatus*. Bivalve, with the shell unarmed and rounded at the tip, 1-toothed at the base; tail with 2 bristles.

*Adams Microsc. p. 567. tab. 27. f. 55.*

In ditch water: *shell* rounded and capable of being opened at both ends, armed with a hook on the fore-part: *tail* consisting of 4 or 5 joints.

758. *Br. mucronatus*. Bivalve, with the shell 2-toothed at the top and bottom; tail with a double spine.

*Muller Verm. i. 1. p. 134. n. 145.*

In stagnant water: *shell* crystalline, rather oblong, truncate at both ends: *tail* with moveable transparent spines: *rotatory-organ* mucronate in the middle.

759. *Br. calyciflorus*. Simple, calyced, with the shell crenate behind; upper-lip of the mouth 4-toothed.

*Baker Microsc. p. 304. tab. 12. f. 4-6.*

In putrid and fresh waters.

760. *Br. quadridentatus*. Shell inflated, 4-toothed at top; rotatory organ double; the base 2-horned; tail long, ending in 2 short points.

*Adams and Kæm. Microsc. p. 569. tab. 27. f. 58.*

In stagnant waters moving with great celerity, and often attaching itself to duckweed by means of its tail: *shell* very transparent,

761. *Br. Patina*. Shell orbicular, unarmed, entire, with a double rotatory organ, and short simple tail.

*Vorticella circularis. Shaw Nat. Mis. t. 199.*

In stagnant waters abounding in aquatic plants.

## 82. VORTICELLA.

### A. Seated on a pedicel or stem.

762. *V. Polypina*. Compound, bell-shaped, with a retortile much branched stem.

*Adams Microsc. t. 27. f. 61. Nat. Misc. t. 278.*

In sea water, adhering to Fuci, appearing to the naked eye like a white point, and has a double spontaneous motion.

763. *V. anastatica*. Compound, bell-shaped, with an oblique mouth, and scaly rigid stem.

*Adams Microsc. p. 397. tab. 21. f. 13-16.*

In fresh waters, forming a cluster branching out in various directions: *ovaries* seated on the stems in the form of bulbs, which detach themselves from the stems, and fix themselves to other substances, producing a new cluster.

764. *V. pyraria*. Compound, branched, with inversely conic naked florets, and 2 double tentacula.

*Adams Microsc. p. 400. tab. 22. f. 25. 26.*

In stagnant waters, long, setaceous, rigid, pellucid at the base, truncate at top, with 2 lateral arms each side.

765. *V. opercularia*. Compound, branched, with oyal naked florets closed with a fringed lid.

*Adams Microsc. p. 401. tab. 22. f. 29.*

In stagnant waters: *stem* much branched, jointed.

766. *V. tuberosa*. Stem forked, with turbinate florets, each with 2 or 3 tubercles.

*Baker Microsc. p. 350. tab. 13. f. 10-13.*

In stagnant waters: rigid, with the tubercles of the florets convex and radiate.

767. *V. umbellaria*. Simple, globular, with blackish granulations, and a rigid stem.

*Adams Microsc. p. 402. tab. 22. f. 30.*

In stagnant waters, resembling a spot of mould: heads yellowish, with distinct opaque dots: branches forked: clusters flat-topped.

768. *V. berberina*. Simple, oval, with a branched rigid stem, and white granulations.

*Adams Microsc. p. 406. Roes. Ins. 3. t. 99.*

In fresh water: branches transparent, and when clustered together appearing of a changeable violet colour.

769. *V. nebulifera*. Simple, oval, with a reflexile stem:

*Adams Microsc. p. 560. tab. 27. f. 66.*

On the *Conserva polymorpha*, invisible to the naked eye: florets narrow at the base, truncate and margined when open, oval when shut.

770. *V. Convallaria*. Simple, bell-shaped, with retortile stem.

*Adams Microsc. t. 22. f. 39. Nat. Misc. tab. 312.*

In fresh waters, on other substances, appearing to the naked eye as so many white points: stems contracting suddenly in a spiral manner, and in a moment expanding themselves again.

771. *V. lunaris*. Simple, hemispherical, with a crescent-shaped aperture, and retortile stem.

*Adams Microsc. t. 27. f. 54. Donovan Ins. t. 8. f. 1-3.*

In stagnant waters: floret cup-shaped, with a protuberant margin ciliate each side with undulating hairs.

772. *V. citrina*. Simple, variously shaped, with a contractile mouth, and equal stem.

*Adams Microsc. p. 558. tab. 27. f. 53.*

In stagnant water: head large, transparent, with greenish-yellow specks: stem curved.

#### B. Furnished with a tail.

773. *V. flosculosa*. Clustered, oblong-oval, with a dilated pellucid disk.

*Adams Microscope p. 557. t. 27. f. 51. 52.*

In fens, adhering to the *Ceratophyllum*, appearing to the naked eye like a yellow globule; head often drawn into the abdomen, exhibiting a broad kidney-shaped disk; abdomen oblong-oval, transparent, with a few black specks: tail very sharp, twice as long as the abdomen, smooth, or rugged with annulations.

774. *V. socialis*. Clustered, clavate, with an oblique disk and rough surface.

*Hydra socialis. Adams Microsc. p. 395. t. 21. f. 11.*

In ditches, growing in clusters on the *Ceratophyllum*, and united by their small thin tails to a common centre: head sometimes contracting into an almost globular form.

775. *V. stentorea*. Simple, trumpet-shaped, with a ciliate margin.

*Hydra stentorea. Adams Microsc. p. 392. t. 22. f. 27. 28.*

In fresh waters, adhering singly by their short tail, and elongated into a trumpet-shaped tube, white, green, or blue, transparent.

776. *V. hyacinthina*. Simple, furnished with an involucre, the border of the mouth many-toothed.

*Baker Microsc. p. 302. tab. 12. f. 2.*

Scattered, oblong, tapering into a tail.

777. *V. Catulus*. Cylindrical, with a plain aperture, and reflected cloven tail.

*Adams Microsc. p. 325. tab. 27. f. 50.*

In marshy waters, thick, muscular, variously folded: head connected by a short neck: tail short, ending in 2 short bristles, and exerted or concealed at pleasure: rotatory-organ very minute.

778. *V. macroura*. With a double rotatory organ, and slender tail ending in a triple spine.

*Baker Microsc. p. 380. tab. 12. f. 1.*

In marshy waters; resembles *V. rotatoria*, but is entirely transparent.

779. *V. rotatoria*. Cylindrical, with a double rotatory organ, and long tail furnished with 4 points.

*Adams Microsc. p. 548. t. 26. f. 1-3. 6. 7. 11--23. t. 27. f. 46-49.*

In stagnant waters, appearing to the naked eye like a yellowish dot, and in rain water which has stood some time in gutters and cisterns; it frequently changes its form and posture, from a long taper body to a short broad flat one; the rotatory organs turn like wheels with considerable velocity: tail consisting of about 3 retractile joints, and terminated by 4 minute hooks.

780. *V. lacinulata*. Inversely conic, with the aperture lobed: tail furnished with 2 small bristles.

*Adams Microsc. p. 547. tab. 27. f. 45.*

In pure water, transparent, cylindrical, with molecular intestines: moving with velocity in an oblique direction.

*C. Without stem or tail.*

781. *V. Ampulla*. Contained in a bottle-shaped pellucid bag: head divided into 2 lobes.

*Adams Microsc. p. 544. tab. 26. f. 4. 5.*

Bag in the shape of a common water-bottle, in which the animalcule is placed, sometimes at the bottom, sometimes nearly filling it.

782. *V. cratægaria*. Subglobular, clustered, and sometimes united by a very minute stem or tail.

*Adams Microsc. p. 400. tab. 22. f. 40.*

Found in muddy waters in the month of April, generally heaped together in a spherical form, and often united by a common stalk.

783. *V. nasuta*. Cylindrical, with a projecting point in the middle of the mouth.

*Adams t. 27. f. 38. 39. Donov. Ins. i. t. 29. f. 2.*

In stagnant waters, invisible to the naked eye, transparent, quick in motion, and perpetually changing its form, rounded at the base, hairy at the mouth each side: rotatory-organ surrounding the middle of the body.

784. *V. crateriformis*. Nearly square, with ciliate tufts behind.

*Adams Microsc. p. 543. tab. 27. f. 40. 41.*

Common in infusions of grass, very vivacious and pellucid, with the internal molecules easily seen, round, longer than it is broad, with the sides convex.

785. *V. truncatella*. Cylindrical, truncate at top with short crowded fringe.

*Hill Hist. anim. p. 6. tab. 1.*

In fresh water, transparent, full of blackish molecules, obtuse at the base, the margin of the mouth entirely surrounded with fringe.

786. *V. limacina*. Cylindrical, truncate, with 2 pairs of rotatory organs.

*Adams Microsc. p. 543. tab. 27. f. 60.*

In stagnant waters, about the mouths and feelers of testaceous animals, transparent, invisible to the naked eye.

787. *V. discina*. Orbicular, with a ciliate margin and a kind of convex handle on the hind part.

*Adams Microsc. p. 542. tab. 26. f. 8-10.*

788. *V. cincta*. Trapeziform, blackish-green, opaque.

*Adams Microsc. p. 539. tab. 27. f. 30.*

In marshes, invisible to the naked eye, sometimes oval and appearing as if surrounded with a transverse keel in the middle, ciliate on all sides.

789. *V. polymorpha*. Of many forms, green, opaque, granulous.

*Adams Microsc. p. 539. tab. 27. f. 33-35.*

Appears to the naked eye like a green point, moving with great agility, and perpetually changing into a variety of forms: *body* granulous.

790. *V. viridis*. Cylindrical, uniform, green, opaque.

*Donov. Ins. t. 39. f. 3. Adams Micr. t. 27. f. 31.*

In fresh water, appearing to the naked eye like a green point, moving circularly or in a straight direction, obtuse at both extremities.

791. *V. bursata*. Green, with a truncate mouth and central papillary projection.

*Adams Microsc. p. 537. tab. 27. f. 32.*

In salt water, round, prominent, filled with molecules.

792. *V. nigra*. Top-shaped, black.

*Donov. Ins. t. 26. f. 3. Adams Microsc. t. 27. f. 36. 37.*

In water which has stagnated on meadows, appearing to the naked eye like a black speck: *body* conical, opaque, obtuse at one end, pointed at the other.

### 83. TRICHODA.

#### A. Hairy.

793. *Tr. Cometa*. Sphaerical, hairy on the fore-part, with an appendant globule or two behind.

*Donovan Ins. t. 26. f. 1. Adams Micr. t. 25. f. 46. 47.*

In pure water: a pellucid globule with bright molecules, and furnished with an appendant lesser globule or two behind.

794. *Tr. granata*. Sphaerical, with an opaque centre, hairy round the periphery.

*Adams Micr. p. 507. tab. 25. f. 48.*

In stagnant waters: an opaque globule, with a pellucid margin surrounded with short hairs.

795. *Tr. Sol*. Globular, every where radiate with short hairs.

*Adams Microsc. t. 25. f. 65, 66. Nat. Misc. t. 453.*

In water which has been kept some time: *body* round, crystalline, dilatable and contractile, full of molecules, and beset with numerous divergent rays of hairs longer than the diameter of the body.

- 796 *Tr. Bomba*. Changeable, pellucid, yellowish, with a few dispersed hairs on the fore-part.

*Adams Micr. p. 509. tab. 25. f. 67. 68.*



In stagnant water, yellowish with paler molecules, moving with velocity, and assuming various shapes.

797. *Tr. trigona*. Convex-conic, ciliate on the fore-part, lobed behind.

*Adams Micr. p. 510. tab. 25. f. 63.*

In fresh water; triangular, convex on both sides.

798. *Tr. pubes*. Oval-oblong, gibbous, depressed on the fore-part.

*Adams Micr. p. 511. tab. 25. f. 61. 62.*

In clear water: body rounded behind, the fore-part with a thick short dilatable neck furnished with extremely short hairs.

799. *Tr. Proteus*. Oval, obtuse behind, with a long contractile neck.

*Adams Micr. p. 512. tab. 25. f. 56-60.*

In animal and vegetable infusions, assuming a great variety of shapes, from orbicular to nearly linear, but generally elliptical, pointed at one end, with a long neck ending in a knob at the other.

800. *Tr. gibba*. Oblong, gibbous in the middle and on the back, both ends obtuse, hairy on the fore-part.

*Adams Micr. p. 513. tab. 25. f. 55.*

Body pellucid, with numerous obscure molecules.

801. *Tr. patens*. Long, round, with an oblong aperture on the fore-part, the edges of which are ciliate.

*Adams Micr. p. 514. tab. 25. f. 54.*

In salt water: body long, cylindrical, a little taper at the ends, and filled with molecules.

802. *Tr. Uvula*. Flattish, elongated, of unequal size, hairy on the fore-part.

*Donov. Ins. t. 8. f. 4. Adams Micr. t. 25. f. 53.*

In vegetable infusions; long, flat, flexuous, nearly of equal size, filled with blackish molecules and lucid globules near the middle.

803. *Tr. Anas*. Elongated, clavate, hairy underneath at the top of the neck.

*Adams Micr. p. 518. tab. 25. f. 49.*

In pure water; smooth, filled with darker molecules.

804. *Tr. Farcimen*. Long, thick, surrounded with small bristles.

*Adams Micr. p. 518. tab. 25. f. 50-52.*

Body round, pellucid, thicker at one end, covered with lucid vesicles.

805. *Tr. Linter*. Oval, oblong, a little prominent at each end.

*Adams Micr. p. 519. tab. 25. f. 51.*

In infusions of grags; varying in shape, with sometimes a rotatory motion.

806. *Tr. vermicularis*. Cylindrical, clavate, with a short hairy neck.

*Donov. Ins. t. 17. f. 3. Adams Micr. t. 27. f. 1. a-e.*

In river water; gelatinous, dilating and contracting itself, pellucid before, filled with molecules behind.

807. *Tr. Melitæa*. Oblong, ciliate, with a dilatable neck globular at the end and surrounded with hairs.

*Donovan Ins. t. 29. f. 1. Adams Microsc. t. 27. f. 13.*

In salt water ; *body* larger on the hind-part.

808. *Tr. fimbriata*. Obovate, hairy at the tip, obliquely truncate and serrate on the hind-part.

*Adams Micr. p. 520. tab. 27. f. 2.*

*Body* pellucid, filled with small molecules.

809. *Tr. Rattus*. Oblong, carinate, hairy on the fore-part, with a very long bristle behind.

*Adams Micr. p. 521. tab. 27. f. 4.*

In stagnant waters; the intestines visible in a gibbosity on the back.

810. *Tr. innata*. Sheathed in a cylindrical bag, with a small pedicel projectile beyond it.

*Adams Micr. p. 526. tab. 27. f. 11.*

In salt water ; funnel-form, contractile.

811. *Tr. Cyclidium*. Oval, gaping at the tip, hairy at the base.

*Adams Micr. p. 527. tab. 27. f. 15.*

In vegetable infusions ; pellucid, filled with globules on the hind-part.

812. *Tr. Pulex*. Oval, with an incision on the fore-part, hairy on the front and base.

*Adams Micr. p. 527. tab. 27. f. 12.*

In fresh water ; erect, a little convex, pellucid, filled with dark molecules, obtuse in front with a few scattered hairs.

813. *Tr. Lynceus*. Nearly square, with a hooked beak and hairy mouth.

*Adams Micr. p. 528. tab. 27. f. 16.*

In water which has been kept some time, membranaceous, compressed, with the intestines eminently visible.

814. *Tr. Charon*. Boat-shaped, grooved, hairy at both ends.

*Adams Micr. p. 529. tab. 27. f. 17, 18.*

In sea water ; oval, hollowed on the upper-part, convex and furrowed beneath.

815. *Tr. Cimet*. Oval, with a lucid margin, hairy before and behind.

*Adams Micr. p. 529. tab. 27. f. 19.*

In vegetable infusions ; convex on the back, flat beneath, with an incision on the margin in front.

816. *Tr. Pocillum*. Oblong, truncate and hairy before, with a jointed tail divided into 2 bristles.

*Donov. Ins. tab. 14. Adams Micr. t. 17. f. 5. 6.*

In marshes ; cylindrical, margined : *mouth* when closed appearing terminated by 2 spines : *tail* with 2 pair of bristles, one on the second joint, the other on the last.

817. *Tr. Musculus*. Oval, hairy on the fore-part, with a projecting tail beneath on the hind-part.

*Adams Micr. p. 523. tab. 27. f. 7.*

In old infusions of hay ; smooth, with a double margin or line beneath, narrow and furnished with short hairs before, and a small pointed tail beneath on the hind-part.

818. *Tr. Delphinus*. Oblong, hairy on the fore-part, ending behind in a reflected truncate tail.

*Adams Micr. p. 526. tab. 27. f. 8.*

In infusions of hay ; smooth, pellucid, egg-shaped.

819. *Tr. Piscis*. Oblong, hairy before, ending behind a very fine slender tail.

*Adams Micr. p. 525. tab. 27. f. 13. 14.*

In water kept some time; smooth, pellucid, longer than it is broad, filled with yellow molecules, obtuse in front.

820. *Tr. longicauda*. Cylindrical, truncate and surrounded with hairs in front, tail long, with 2 points and 2 bristles.

*Adams Microscope. p. 525. tab. 27. f. 10.*

*B. furnished with cirri.*

821. *Tr. Acarus*. Round, tumid, cirrate behind, pointed before.

*Adams Microscope p. 534. tab. 27. f. 27.*

In fresh water; pear-shaped, full of black molecules, the tip pellucid and radiate with 4 long curved soft tendrils.

822. *Tr. Ludio*. Gibbous, cirrate on one edge and hairy on the other; tail forked stretched forward.

*Donovan Ins. t. 20. f. 2. Adams Microscope t. 27. f. 26.*

In stagnant water; smooth, pellucid, clavate, full of small points: cirri placed at top and in the middle.

*C. Horned.*

823. *Tr. Histrio*. Oblong, with mucronate points on the fore-part, and longitudinal fin-like bristles behind.

*Adams Microscope p. 531. tab. 27. f. 20.*

Body membranous, pellucid, with 4 or 5 black points on the fore-part, the middle with close black specks and a few large white spots; near the lower-part a few longitudinal bristles, not reaching beyond the body.

824. *Tr. Cypris*. Pear-shaped, sinuate towards the hind-part, hairy on the fore-part.

*Adams Microscope p. 531. tab. 27. f. 21.*

In ditch water; compressed, rounded behind.

825. *Tr. Patella*. Covered with an univalve shell, emarginate and horned in front, with pendulous flexile bristles behind.

*Adams Microscope p. 531. tab. 27. f. 22. 23.*

In marsh water; compressed, rounded behind.

826. *Tr. Pullaster*. Oval, sinuate on the fore-part with a crest in front, hairy at the base.

*Adams Microscope p. 532. tab. 27. f. 24. 25.*

In ditches; pellucid with shining molecules, truncate and surrounded with hair in front, sinuous on the fore-part.

827. *Tr. Mytilus*. Oblong, broader at each extremity; transparent, ciliate and horned.

*Adams Microscope p. 532. tab. 27. f. 29.*

In marsh water, pellucid, white and rounded at both ends, dark in the middle with black intestines mixed with a few white molecules, ciliate and armed with 2 horns in front, ciliate behind and furnished with 2 bristles reaching beyond the margin.

84. CERCARIA.

828. *C. Gyrinus*. Round, with a sharp-pointed tail.

*Baker Microsc. expl. tab. 10. f. 1 ?*

In animal infusions; white, gelatinous, nearly globular on the fore-part.

829. *C. inquieta*. Changeable, convex, with a smooth tail.

*Adams Microscope* p. 493. *tab.* 25. *f.* 31.

In salt-water; white, gelatinous, changing its shape into a spherical long or oval figure, but always preserving its tail.

830. *C. Lemna*. Changeable, somewhat flattened, with an annulate tail.

*Adams Microsc.* p. 494. *tab.* 25. *f.* 33-35.

In ditch water; changing to oblong, triangular, or kidney-form; tail short, thick, annulate, or long, flexile, without rings.

831. *C. Turbo*. Globular, contracted in the middle, with a setaceous tail.

*Adams Microscope* p. 494. *tab.* 25. *f.* 30.

Body pellucid, partly spherical, appearing composed of 2 unequal globular bodies: tail sometimes straight, sometimes reflected.

832. *C. Podura*. Cylindrical, taper, pointed and slightly cloven behind.

*Adams Microscope* p. 494. *tab.* 25. *f.* 36. 37.

In marshy places; pellucid, with black molecules on the trunk: head rounded, with a contraction a little below it.

833. *C. mutabilis*. Changeable, cylindrical, red or green, with a pointed slightly cloven tail.

*Shaw Naturalist's Miscellany* *tab.* 107.

In stagnant pools, in such innumerable myriads as to cover the whole surface with a sheet of green or red, giving it sometimes the appearance of being tinged with blood; varies its posture from a long cylindrical body, larger in the middle, to a nearly globular-one: the extremities are pellucid.

834. *C. Lupus*. Cylindrical, thick, elongated, the tail ending in 2 spines.

*Adams Micr.* p. 497. *tab.* 25. *f.* 39.

In stagnant water: head truncate, divided from the body by a contraction: tail much narrower than the body, ending in 2 bright moveable spines.

835. *C. vermicularis*. Cylindrical, annulate, with an exsertile proboscis, and forked tail.

*Adams Microscope* p. 497. *tab.* 25. *f.* 40.

In stagnant water; divided into 8 or 9 annulations, tapering towards the tail, the tip either obtuse or lunate.

836. *C. Tripus*. Nearly triangular, with a pointed reflected arm each side, and straight tail.

*Adams Microscope* p. 498. *tab.* 25. *f.* 38.

In salt water: body flat, pellucid.

## 85. LEUCOPHRA.

837. *L. Conflictor*. Spherical, subopaque, with moveable intestines.

*Baker employm. Mic.* *tab.* 3. *n.* 3.

In clear water; yellowish with dark edges, and filled with most minute molecules in continual violent agitation.

838. *L. vesiculifera*. Oval, with vesicular intestines.

*Adams Micr.* p. 502. *tab.* 25. *f.* 41.

Body pellucid, with a dark grey edge, the middle frequently appearing of a blue cast.



339. *L. cornuta*. Inversely conic, green, opaque.*Adams Microscope* p. 506. tab. 25. f. 42. 43.

In marshy grounds; broad and truncate in front, with a small spine each side, pellucid and pointed behind: sometimes it appears oval or kidney-shaped, and when the water which contains it evaporates, it breaks into molecular vesicles.

340. *L. heteroclita*. Cylindrical, obtuse in front, furnished behind with a double crested exsertile organ.*Adams Micr.* p. 506. tab. 25. f. 44. 45.

To the naked eye appearing as a white point; intestines visible.

## 86. BURSARIA.

341. *B. Hirundinella*. Oval, pointed at each end, with a sharp fin each side.*Donovan Ins.* t. 5. f. 2. *Adams Micr.* t. 25. f. 19.

In ditch and marsh water: a pellucid hollow membrane, moving forwards like a bird in flight.

342. *B. duplella*. Elliptic, with the edges folded over, leaving a narrow longitudinal hollow.*Adams Microscope* p. 492. t. 25. f. 18.

Among Duck-weed, without visible intestines.

## 87. GONIUM.

343. *G. pectorale*. Quadrangular, pellucid, with 16 spherical molecules.*Adams Microscope* p. 489. t. 25. f. 17.

In pure water: molecules oval, nearly equal in size, set in a quadrangular membrane like diamonds in a ring, the lower-ones a little larger than the rest.

## 88. COLPODA.

344. *C. Meleagris*. Changeable, with the fore-part hooked, the hind-part folded up.*Donov. Ins.* t. 32. f. 2. *Adams Micr.* t. 25. f. 22.

In water impregnated with vegetables: membrane dilated, finely folded, variously bent every moment; the fore-part clear and bright, the hind-part variously plaited and full of molecules; the margin sinuate.

345. *C. Cucullus*. Oval, inflated, with an incision beneath the tip.*Adams micr.* p. 487. tab. 25. f. 23.

In various vegetable infusions: pellucid, with an irregular margin, filled with bright molecules; generally oval, with the top bent into a kind of beak, sometimes oblong but usually obtuse, with 8-24 bright molecules

346. *C. Pyrum*. Convex, oval, produced in front into a beak*Adams Micr.* p. 489, tab. 25. f. 20. 21.

Body uniform, transparent, pale, filled with molecules; the neck rather long and a little bent.

## 89. PARAMECIUM.

347. *P. Aurelia*. Compressed, longitudinally plaited towards the fore-part, acute behind.*Hill Anim.* 1. t. 3. *Herman. Naturf.* 20. t. 3. f. 41. a.

In ditch-water and infusions; membranaceous, 4 times as long

as it is broad; the fore-part obtuse, hyaline; the hind-part filled with molecules; the fold reaching from the middle to the tip,

348. *P. Chrysalis*. Cylindrical, longitudinally plaited on the fore-part, obtuse behind.

*Adams Microscope p. 483. tab. 25. f. 26.*

In salt water; resembling the last, but is more obtuse behind; the margins filled with black globules.

349. *P. oviferum*. Depressed, with large oval molecules within.

*Adams Microscope p. 483. tab. 25. f. 25.*

Body oval, pellucid, with black grains.

350. *P. marginatum*. Depressed, grey, with a double margin.

*Adams Microscope p. 483. tab. 25. f. 24.*

Body flat, elliptical, with a clear spiral intestine.

## 90. CYCLIDIUM.

351. *C. Bulla*. Orbicular, transparent.

*Hill Anim. t. 1. 2. Wrisb. infus. f. 1. b.*

In infusions of hay; pellucid, white, with the edges a little darker: motion slow and circular.

352. *C. radians*. Oval, with distinctly visible intestines.

*Hill Hist. anim. tab. 1. f. 3.*

In vegetable infusions; smooth, pellucid, with a blue canal within branching into 2 arms, and 2 transverse lines just beneath the middle of the body.

353. *C. Nucleus*. Oval, ending in a point behind.

*Hill Hist. anim. tab. 1. f. 4?*

In vegetable infusions, resembling a grape-seed; intestines visible, the fore and hind-part dark each side.

354. *C. Pediculus*. Oval, convex above, flat beneath.

*Trembley Polyp. 1. p. 282. tab. 7. f. 10. 11.*

On the arms of the Hydra fusca: gelatinous, whitish, each end depressed and truncate, sometimes cloven at one end.

## 91. VIBRIO.

355. *V. Lunula*. Bow-shaped, pointed at each end.

*Adams Microscope p. 458. tab. 25. f. 16.*

Body green, with a few globules disposed longitudinally.

356. *V. Serpentina*. Of an equal size, rather pointed at the ends.

*Hill Anim. t. 1. Spallanz. Microsc. p. 189. f. 2. 12.*

In vegetable infusions of several weeks standing; whitish, frequently convolute and drawn into various forms, marked with a longitudinal row of white dots.

357. *V. Aceti*. Rather rigid, with a tapering pointed tail, and a retractile protuberance at the base.

*Adams micr. t. 11. f. 7. Bak. Micr. t. 10. f. 8. 9.*

In vinegar and other mild acids; very fertile, pellucid, and active; is both viviparous and oviparous.

358. *V. Glutinis*. Filiform, with a dark shield on the back surrounded with a white ring: head obtuse.

*Adams Micr. p. 462. tab. 11. f. 6. 8. 9. 10.*

In paste and other viscid substances which have been kept some time; resembles the last, but is much slower, shorter, and less pointed at the tail.

859. *V. Anguillula*. Somewhat rigid, tapering both ways.

*Adams Micr. t. 11. f. 4. 5. Nat. Miscell. t. 431.*

In paste, vegetable sediments, and infusions of grain, and in sea water; pellucid, with hardly visible intestines, but sometimes a transverse line in the middle, and rarely a longitudinal row of globules: it is oviparous.

860. *V. Anser*. Elliptic, with a long neck, and a tubercle on the back.

*Adams Micr. p. 477. tab. 25. f. 27. 29.*

In water where Duck-weed grows; elliptic, round, full of molecules, produced into a bending neck longer than the body on the fore-part, sharp and bright behind.

861. *V. Olor*. Elliptical, with a very long neck clavate at the end.

*Donov. Ins. t. 23. f. 1. Adams Micr. t. 25. f. 28.*

In water replete with decayed vegetables; membranaceous, dilatable, continually moving the neck, somewhat pointed behind.

862. *V. Proteus*. Gelatinous, shooting out into a fine point.

*Donovan Ins. t. 32. f. 3. 4. Adams Microsc. t. 25. f. 4. 5.*

In river water, pellucid, filled with black molecules, changing its form continually, but always ending in a point.

## 92. BACILLARIA.

63. *Paradoxa Bacillaria*.

*Adams Microscope t. 25. f. 13-15. Nat. Miscell. t. 436.*

On the *Ulva latissima*: body composed of 5-40 linear yellowish short filaments united together, forming themselves into a square, zigzag, or extended line, but always preserving their parallelism and resting in a square.

## 93. ENCHELIS

864. *E. punctifera*. Green, subcylindrical, obtuse before, pointed behind.

*Adams Micr. p. 443. tab. 25. f. 8.*

In marshes; opaque, with a pellucid spot containing 2 black dots on the fore-part, and a double dark band in the middle.

865. *E. caudata*. Elongated, obtuse before, tapering to a tail behind.

*Adams Microsc. p. 447. tab. 25. f. 9.*

Body grey, pellucid, covered with globular molecules, obtuse before, tapering to a transparent tail behind.

866. *E. retrograda*. Transparent, narrowed before, with a globular tip.

*Adams Micr. p. 448. tab. 25. f. 11. 12.*

Gelatinous, without visible intestines, moving sideways, and sometimes retrograde,

867. *E. Truncus*. Cylindrical, with a dilated round head.

*Adams Micr. p. 450. tab. 25. f. 10.*

Body large, mucous, grey, rather opaque, globular in front, obtuse behind, with sometimes 3 teeth protruded from the middle

on one side, filled with globules: motion slow, from right to left.

## 94. VOLVOX.

868. *V. Sphærula*. Sphærical, with similar round molecules.

*Adams Micr. p. 439. tab. 25. f. 6.*

In stagnant waters; composed of about 60 pellucid homogeneous white or greenish-yellow points; moves slowly, about a quarter of a circle from right to left, and then back again from left to right.

869. *V. Lunula*. Hemisphaerical, with similar crescent-shaped molecules.

*Adams Micr. p. 439. tab. 25. f. 7.*

In marsh water; composed of numerous pellucid lunate homogeneous molecules, and has a double motion, that of the whole mass turning slowly round, and of the molecules one among the other.

870. *V. Globator*. Sphaerical, membranaceous, with variously sized homogeneous molecules.

*Natur. Misc. t. 427. Baker Micr. t. 12. f. 27.*

In stagnant water and vegetable infusions: body green or yellow, moving slowly round its axis in all directions; a pellucid membrane covered with smaller and larger molecules, and these provided with a still smaller molecular progeny, containing within itself a tribe of already impregnated descendants.

## 95. MONAS.

871. *M. Atomus*. Whitish, with a variable point.

*Adams Micr. p. 431. tab. 25. f. 1.*

In sea water kept a long time: body a white point, somewhat oval, with a minute black dot variable in its posture, rarely with 2.

872. *M. Punctum*. A solid opaque black point.

*Adams Micr. p. 431. n. 3.*

In fetid infusions of pears: body round, moving in a slow wavering manner.

873. *M. Mica*. Transparent, with an oval moveable circle in the middle.

*Adams Micr. p. 433. n. 6.*

Common in purer waters: body a lucid point, variable in its motions, and encompassed by a beautiful halo,

874. *M. Lens*. Transparent, with sometimes a greenish margin.

*Baker Micr. t. 10. f. 1-3. Hill. Anim. t. i. 1.*

Found in all water; a round pellucid dot, frequently in masses, without the least vestige of intestines.

875. *M. Termo*. A most minute simple gelatinous transparent point.

*Adams Micr. p. 430. n. 1.*

In most animal and vegetable infusions; of all known animals the most minute and simple, being so extremely delicate and transparent, as often to elude the most highly magnifying powers, blending as it were in the water in which it swims.



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<i>Teal</i> . . . . .	77	<i>Volvox</i> . . . . .	230
<i>Tellina</i> . . . . .	149	<i>Voluta</i> . . . . .	170
<i>Tench</i> . . . . .	108	<i>Vorticella</i> . . . . .	219
<i>Terebella</i> . . . . .	132	<i>Upupa</i> . . . . .	34
<i>Teredo</i> . . . . .	202	<i>Urchin</i> . . . . .	11
<i>Tern</i> . . . . .	68	<i>Uria</i> . . . . .	67
<i>Testudo</i> . . . . .	78	<i>Ursus</i> . . . . .	10
<i>Tetrao</i> . . . . .	50	<b>W.</b>	
<i>Tetrodon</i> . . . . .	116	<i>Wagtail</i> . . . . .	43
<i>Thistle-finch</i> . . . . .	40	<i>Warbler</i> . . . . .	44
<i>Thornback</i> . . . . .	111	<i>Weesel</i> . . . . .	9
<i>Throstle</i> . . . . .	35	<i>Weever</i> . . . . .	89
<i>Thrush</i> . . . . .	35	<i>Whale</i> . . . . .	15
<i>Titmouse</i> . . . . .	47	<i>Wheat-ear</i> . . . . .	46
<i>Toad</i> . . . . .	80	<i>Whelk</i> . . . . .	171. 173
<i>Tomtit</i> . . . . .	48	<i>Whiff</i> . . . . .	97
<i>Tope</i> . . . . .	112	<i>Whimbrel</i> . . . . .	55
<i>Top-shell</i> . . . . .	177	<i>Whinchat</i> . . . . .	46
<i>Tooth-shell</i> . . . . .	198	<i>White-bait</i> . . . . .	109
<i>Torpedo</i> . . . . .	110	<i>White-throat</i> . . . . .	45
<i>Torsk</i> . . . . .	92	<i>Whiting</i> . . . . .	91
<i>Tortoise</i> . . . . .	78	<i>Whiting-pout</i> . . . . .	90
<i>Trachinus</i> . . . . .	89	<i>Wigeon</i> . . . . .	75
<i>Trichocephalus</i> . . . . .	126	<i>Wolf</i> . . . . .	9
<i>Trichoda</i> . . . . .	222	<i>Wolf-fish</i> . . . . .	87
<i>Trigla</i> . . . . .	102	<i>Wood-chat</i> . . . . .	20
<i>Tringa</i> . . . . .	58	<i>Woodcock</i> . . . . .	56
<i>Triton</i> . . . . .	138	<i>Wood-pecker</i> . . . . .	32
<i>Trochus</i> . . . . .	177	<i>Wrasse</i> . . . . .	98
<i>Trout</i> . . . . .	103	<i>Wreath-shell</i> . . . . .	178
<i>Trumpet-fish</i> . . . . .	117	<i>Wren</i> . . . . .	47
<i>Tube-worm</i> . . . . .	128	<i>Wryneck</i> . . . . .	82
<i>Tubularia</i> . . . . .	210	<b>X.</b>	
<i>Tunny</i> . . . . .	101	<i>Xiphias</i> . . . . .	88
<i>Turbo</i> . . . . .	178	<b>Y.</b>	
<i>Turbot</i> . . . . .	97	<i>Yellow-hammer</i> . . . . .	38
<i>Turdus</i> . . . . .	35	<i>Yunx</i> . . . . .	32
<i>Turn-stone</i> . . . . .	61	<b>Z.</b>	
<i>Turtle</i> . . . . .	78	<i>Zeus</i> . . . . .	95
<i>Turtle-dove</i> . . . . .	50		
<i>Twaite</i> . . . . .	41		

## ADDITIONS AND CORRECTIONS.

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**P. 10. Under *Talpa europæa*, insert**

*Var. 2.* White, with rusty red throat and belly.

*Var. 3.* Spotted black and white.

Both these varieties were taken, in the spring 1807, at Kyllc-maenllwyd in Caermarthenshire, the seat of John Rees, Esq.

**P. 25. After *Turdus iliacus*, insert**

- 63.\* *T. gularis*. Above dusky-brown, beneath white with a dusky bar across the bottom of the throat: vent rusty-yellow, with black bars.

Penrith Ouzel. *Latham Synops.* ii. p. 177. n. 2.

*Body* larger than *T. Cinclus*, above dusky-brown: *chin and throat* white, with a dusky bar at the bottom of the latter: *breast, belly, and thighs* white, with short black streaks pointing downwards, more numerous towards the lower belly and thighs: *vent* yellowish, barred with black: *legs* rusty-yellow.

*Obs.* This species is added by Dr. Latham, from Mr. Pennant's notes of a Journey from Downing to Alston Moor, in which is painted a figure of the bird.

Title-page in the quotation, for *principio* read *principio*.

Page 15, line 32, for *black* read *black*.

15, 34, for *lobes* read *lobes*.

35, 9 from the bottom, for *reddish-oranpe* rd. *reddish-orange*

87, 4 from the bottom, for *t. 32* read *t. 33*.

103, 5, for *unarmed* read *head unarmed*.

107, 41, for *Shaw Zvol.* read *Shaw Zool.*

108, 5 from the bottom, for *co-* read *covered*.

118, n. 5, for *FACIOLA* read *FASCIOLA*.

118, n. 10. place *HIRUDO* in the division b. *Without the lateral pore.*

Page 124, last line, for 62 read 92.

129, line 25, *Horse-leech* place under *H. sanguisuga*.

138, 7 from the bottom, for *t. 8. f. 5.* read *t. 7. f. 2.*

141, 3, for *A. sphærulata* read *A. sphærolata*.

167, 19, for *joint* read *joint*.

171, 36, for *operture* read *aperture*.

204, 17, for *psrtitions* read *partitions*.

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J. EVANS, PRINTER,

Wind-Street.

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